developmental disabilities

ABSTRACTS

DEVELOPMENTAL DISABILITIES OFFICE

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Rehabilitation Literature
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Training School Bulletin

BROAD ASPECTS OF DEVELOPMENTAL DISABILITIES

1 **ANGELI, EMELIA; & KIRMAN, B.** Genetic prognosis in severe mental handicap. *Journal of Mental Deficiency Research*, 19(3/4):173-193, 1975.

A population of 698 children below age 16 years with severe MR (IQ below 50) who were admitted to hospital between 1956 and 1959 was surveyed for genetic prognosis. The population was divided into 23.7 percent with MR ascribed primarily to environmental factors, 50.9 percent unclassified etiologically, 16.2 percent with Down's syndrome, 5.3 percent with other genetic syndromes, and 3.9 percent with congenital hydrocephalus. The incidence of a similar degree of MR among the sibs of 660 families who were traced was 1.1 percent in the environmental group, 4.7 percent for the unclassified, 1.7 percent for Down's syndrome, 11.5 percent for other genetic syndromes, and 4.3 percent for hydrocephalus with spina bifida. There were no affected sibs of the uncomplicated cases of congenital hydrocephalus. The survey underlines the fact that a high proportion of cases of MR remains without etiological diagnosis and emphasizes the value of such a diagnosis for genetic counseling. When families with similarly affected near relatives or severely MR sibs are set aside, the recurrent risk for unclassified cases is reduced to 3 percent. (86 refs.) (Author abstract modified)

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2 **CROCKER, ALLEN C.; & CUSHNA, BRUCE.** Ethical considerations and attitudes in the field of developmental disorders. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 23, pp. 495-502.

The right to treatment, value assignments, quality of life, and distribution of educational resources are among the important ethical issues that must be confronted by those dealing with developmentally disabled children. The professional relation with developmentally disabled individuals most typically involves the issue of the right to treatment. Major conflict exists regarding the justification for complex or expensive treatment programs, since they may represent excessive commitment of family resources. The sensitive professional must place judicial defenses for the right to life parallel with determination to provide a substantial quality of life. A basic community control mechanism, such as the Core Evaluation Team, must be maintained for decisions regarding the dissemination of special services among these children. There must be an altruistic commitment in the human services field towards the service aspects, or the system will be unable to support sufficient numbers of professionals. (1 ref.)

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3 **JOHNSTON, ROBERT B.; & MAGRAB, PHYLLIS R., eds.** *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, 532 pp. $14.50.

An understanding of the nature of developmental disorders is provided, and the roles and services performed by various intervening disciplines are examined. Normal and aberrant developmental processes are reviewed, with emphasis placed on the mechanisms and manifestations of MR,

cerebral palsy, learning disabilities, deafness, and autism, among other disorders. The manner in which each discipline accomplishes its function and interacts with other disciplines is discussed, and proposals for enhancement of the interdisciplinary process are offered.

4 **FELICETTI, DANIEL A.** Mental health, retardation, and government: an overview. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975. Chapter 3, pp. 18-14.

Three quite distinct responses to mental illness and MR have prevailed in the United States. Until the mid-twentieth century, the nation's approach was characterized primarily by private physician-patient-family relationships, some charitable efforts, and public custodial care. In this period the burden fell on large state institutions largely designed to protect the public and patients themselves from abuses of antisocial behavior. By the mid-40's, an emerging national movement produced a call for significant federal participation, and federal bureaucratic structures were established within 2 decades to help plan and coordinate national, state, and local programs. In this period of federalist revolution (1955-1965), the federal government responded to the Kennedy-Johnson call for subsidies to help sustain such approaches as the community centers program. In the last half of the 1960's, the era of strong federalist ascendancy began to yield to advocates of moderate federalist actions, and President Nixon attempted to phase out, supplement, and reorganize specific approaches while maintaining a fundamental acceptance of federal responsibility in this area. In most recent years, the emphasis has been placed upon the problems of inflation and the need to establish national priorities in this field as in all others. (59 refs.)

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5 **CLOUSER, K. DANNER.** Medical ethics: some uses, abuses, and limitations. *New England Journal of Medicine*, 293(8):384-387, 1975.

A misunderstanding of the purpose and limitations of medical ethics may be generating a backlash against it. The primary roles of medical ethics are (a) sensitizing people's consciousness to details of the biomedical world that have ethical implications and (b) structuring the disputed issue – abortion, nontreatment, the concept of the person and personal right – by highlighting the relevant principles and implications, analyzing the pivotal concepts, and focusing on the relevant facts. A serious limitation of medical ethics is its inability to discriminate finely, so that a single line of action can seldom be determined by moral criteria alone. Underlying many criticisms of medical ethics is the failure to realize that it is not a reform movement or an effort to inspire moral behavior and that it is not and cannot be a specialist's body of esoteric knowledge. Many of its key notions must be referred to expertise outside of ethics; some ethical concepts need conceptual analysis by a variety of fields, while others require empirical investigation. Ethics can provide broad guidelines aimed at harmonizing the aims and desires of all men by allowing those of each man to be realized so far as they are compatible with those of everyone else. Physicians for the most part must work out rational, day-by-day arrangements in those issues of medical practice between doctor and patient, doctor and doctor, and doctor and staff which will settle the issue by common agreement. (3 refs.)

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6 The National Center on Educational Media and Materials for the Handicapped. *Clinical Pediatrics*, 14(12):1118, 1975.

Establishment of the National Center on Educational Media and Materials for the Handicapped (NCEMMH) at Ohio State University, Columbus, Ohio, is announced. The Center, which is funded by the Department of Health, Education and Welfare, introduces materials pertaining to handicapping conditions to commercial manufacturers, assists in identifying markets for instructional materials for the handicapped learner, and reprints books dealing with a wide range of handicapping conditions. Books on speech improvement for TMRs and a 3 volume bibliography on cerebral

palsy and other developmental disabilities are among early releases. A major activity of the Center is the provision of films and related materials to Area Learning Resources Centers, government agencies, and teacher education departments in colleges and universities. Inquiries should be directed to NCEMMH, the Ohio State University, 220 West 12th Avenue, Columbus, Ohio 43210.

7 **REED, JAMES.** Knowledge, power, man and justice: ethical problems in biomedical research. *Canadian Journal of Genetics and Cytology*, 17(3):297-304, 1975.

Some of the ethical issues involved in contemporary biomedical research and technology are discussed. The task of the ethicist is described, along with legalistic, antinomian, and contextual approaches to ethical decision-making. The contextualist applies ethical maxims to situations where they are appropriate, while abandoning traditions for higher principles of love and justice. Questions related to problems of knowledge and power may involve the collection and distribution of information, as in mass screening programs for detecting genetic disease. Issues involved in genetic counseling, organ transplants, and eugenic sterilization of the MR are difficult for many people to fathom. More advanced technologies will create even more complicated issues, which may increase the power of technicians and physicians to make decisions for others. Biomedical experimentation raises some basic problems concerning man's understanding of himself, centering upon death and procreation, sexuality, and personhood. Biomedical research eventually has to face questions of justice: who should receive the advantages to be derived from genetic knowledge and therapeutic technology? Other questions involving the justification of genetic engineering are proposed. (14 refs.)

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8 **CORBETT, JOHN.** Mental deficiency or mental retardation. *Developmental Medicine and Child Neurology*, 17(6):817, 1975. (Letter)

In response to previous correspondence on the terminology of childhood disorders, the use of the term "mentally retarded" is defended. The term "mentally handicapped" is overinclusive, and "mentally defective" is misleading unless it can be shown that a person has reached his maximum potential by exposure to ideal environmental conditions. The term "mental retardation," which describes a slowing and impairment in learning, is an internationally accepted psychological label. There is a need for a multiaxial classification of children's disorders. (4 refs.)

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9 U.S. Agriculture Department. *The Natural Environment and Human Development: Implications for Handicapped Children in Urban Settings*. 56 pp. (Forest Service.) Hawkins, Donald E. Washington, D.C., 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF 76 cents; HC $3.32, plus postage. Order No. ED113896.

The natural environment can be used both as a therapeutic modality and to facilitate the development of handicapped children. Innovative educational recreational and camping programs can be devised, and architectural modifications and barrier-free design can be implemented according to specially developed standards. Environmental program planning within the framework of exceptional child education can affect physical and motor development; perceptual development; behavior, personality, and affective development; and intellectual, cognitive, and language development. (180-item bibliog.)

Forest Service
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10 **BROLIN, DONN E.** The nature of mental retardation. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens*. Columbus, Ohio: Charles E. Merrill, 1976, Chapter 1, pp. 5-17.

As a group, MR persons are very diverse individuals, and they must be considered individually rather than assuming any gross generalizations

about their characteristics and potentials. The general public and some professional workers have gross misconceptions about the causes of MR and the personality and learning characteristics of affected individuals. The more than 200 identifiable medical causes of MR actually can be attributed to only 15-25 percent of persons classified as MR. The largest group of MRs can be classified as cultural-familial, while psychological causation can be attributed to a rather small percentage. The American Association of Mental Deficiency classifies MRs as mild, moderate, severe, and profound. Professional workers should give a great deal of attention to the causes, personality, and learning characteristics of the MR before engaging in evaluation, education, counseling, training, placement, and other activities intended to prepare MR to enter the mainstream of society.

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11 **HARPER, PETER S.; & WILLIAMS, E. MAIR.** Genetic disorders in Gypsies. *Lancet*, 1(7914):1041, 1975. (Letter)

A genetic study of Romany Gypsies in Wales revealed a high incidence of phenylketonuria (estimated prevalence 1/40; gene frequency 0.16), as well as infantile metachromatic leukodystrophy and congenital nystagmus. To determine whether these conditions simply reflect the high degree of consanguinity in this population, or whether these genes are at high frequency in other Gypsy populations as well, information is solicited on inherited disorders in other Gypsy populations of Britain and Europe.

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12 **HELLEGERS, ANDRE E.** Children as research subjects. *New England Journal of Medicine*, 292(14):759, 1975. (Letter)

The key issue in the debate about using children or incompetents as research subjects is whether it is legal and ethical for parents to enroll their child in a medical experiment from which that child cannot possibly benefit, regardless of whether other children or society may do so. In any analysis of whether a child may benefit from a particular experiment, it should be remembered that most children ultimately become parents. As parents, they suffer a degree of anguish in seeing their own children ill. Also, the benefits to the child as child could conceivably be increased by addition to the research protocol of a diagnostic procedure for conditions that would not be assessed, usually, in well children. Such an approach could obviate the Kantian criticism that the child was being used as a means only.

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MEDICAL ASPECTS – Diagnosis (General)

13 **ZEHRBACH, R. REID.** Determining a preschood handicapped population. *Exceptional Children*, 42(2):76-83, 1975.

CIP, a comprehensive process for locating, screening, and evaluating young (CA 3 to 5 year) handicapped children, was implemented with a school population of more than 700 children. Contact with parents of children in this age group was made through mass mailings, telephone calls, open houses, media campaigns, and notices sent through children already in school. Mass screenings and subsequent mini-roundups assessed vision, hearing, medical history, social-emotional development, speech articulation, and gross motor, fine motor, and cognitive-verbal skills. A total of 762 children was screened initially through CIP. Of the total, 71.5 percent passed the screening without difficulty, while 10.9 percent were referred directly for a complete workup. Of the children initially screened by CIP, 5.3 percent were recommended for placement in special programs. CIP identified 13.7 percent of the population as requiring some type of special service. Less than 9 percent of those referred for a complete workup were misreferred. Although the efficiency rate of traditional referral methods was found to be much higher than that achieved by CIP, the CIP process resulted in the identification of many more children with mild to moderate problems than the traditional agency referral method did. (3 refs.)

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14 **DAS, SALIL K.; FOSTER, HENRY W.; ADHIKARY, PARIMAL K.; MODY, BHARATI B.; & BHATTACHARYYA, DIPAK K.** Gestational variation of fatty acid composition of human amniotic fluid lipids. *Journal of Obstetrics and Gynecology*, 45(4):425-432, 1975.

Detailed human amniotic fluid lipid analysis during various gestational stages indicated that the amount of total lipids in the fluid of normal Ss increases progressively with gestational age and reaches its maximum at 40 weeks of pregnancy. Following this pattern, the lecithin/sphingomyelin ratio is 2:1 or greater beyond 34 weeks of pregnancy and maximum at term. The palmitic acid content of the lecithin fraction increases with gestational age, with the increase markedly accelerated near the thirty-fourth week of pregnancy, but no definite correlation exists between the palmitic acid content of total lipids and gestational age. The arachidonic acid of cholesterol esters also rises with gestational age. Both the palmitic acid level of lecithin and the arachidonic acid level of cholesterol esters might be more valid indicators of fetal lung maturity than present methods. (23 refs.)

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15 **SCHIFRIN, BARRY S.; LAPIDUS, MARILYN; DOCTOR, GEETI S.; & LEVITON, ALAN.** Contraction stress test for antepartum fetal evaluation. *Journal of Obstetrics and Gynecology*, 45(4):433-438, 1975.

The contraction stress test (CST) was evaluated in 120 high-risk patients who had either hypertensive disorders of pregnancy or pregnancies extending beyond 42 weeks. The test attempts to determine fetal reserve prior to labor by evaluating responses of the fetal heart rate to uterine contractions. The CST was employed 189 times (no more than 8 times in any 1 patient) using an external fetal heart rate monitor and tocograph. It was begun as early as 34 weeks and repeated at weekly intervals. Of 101 babies with negative tests, only 3 developed distress during labor. Of 9 fetuses with positive tests, 2 were stillborn, 3 had low Apgar scores, and 2 others showed obvious intrauterine growth retardation but good Apgar scores. All infants who were delivered alive survived. A negative test appeared to be the most reliable guide to ability to tolerate labor if it ensues within

1 week. A positive test suggested a fetus at increased risk but not necessarily in danger of dying. The CST should be evaluated in controlled studies. (8 refs.)

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16 **JOUPPILA, PENTTI; & PIIROINEN, OLLI.** Ultrasonic diagnosis of fetal life in early pregnancy. *Obstetrics and Gynecology*, 46(5):616-620, 1975.

Ultrasound methods for detecting fetal life during early pregnancy -- including the A-mode method examination using ultrasonic Doppler equipment, and the rapid B-mode method -- are reviewed. By using these recently developed techniques, fetal heart function can be detected as early as the forty-fourth to forty-fifth day of amenorrhea. Fetal movements in the amniotic cavity can be visualized from the tenth week on. If no signs of fetal life can be detected by ultrasound examination by the tenth week, the pregnancy is in jeopardy. However, the prognosis is favorable in over 90 percent of those cases of threatened abortion in which fetal life has been confirmed by ultrasound. Compared with other diagnostic methods, ultrasound techniques have the added advantages of giving immediate information, minimizing the possibility of false-positive findings, and eliminating metabolic and technical errors and ambiguities. It has also been shown, in cases of bleeding in early pregnancy where fetal life can be detected ultrasonically, that the likelihood of spontaneous abortion later on in the pregnancy is only 6-7 percent. Because fetal development usually terminates long before the beginning of bleeding in pregnancies destined to abort, no signs of fetal life can be detected at the time when the patient seeks medical help. If the development continues long enough for detection of fetal heart function or fetal movements, the fetus will usually be carried to full term. (31 refs.)

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17 **STOCKER, J.; MAWAD, R.; DELEON, A.; & DESJARDINS, P.** Ultrasonic cephalometry: its use in estimating fetal weight. *Obstetrics and Gynecology*, 45(3):275-278, 1975.

Data are reviewed on 100 consecutive patients delivering within 7 days after the fetal biparietal diameter (BPD) had been successfully measured *in utero* by ultrasonic cephalometry. The data were used to assess the weight-predicting potential of 3 known formulas—Thompson's, Hellman's, and Kohorn's. With Thompson's formula, 78 percent of infant weights fell within a range of 350gms, the absolute mean error for the 100 cases being 267gms. Excluding cases of fetal malnutrition, when the BPD obtained was 8.3cm or more, all newborn babies weighed more than 2,000gms, and with a BPD of 8.7cm or more they all exceeded 2,500gms. Ninety percent of newborn infants in whom the *in utero* BPD was 8.1cm or more weighed more than 3,000gms. These values compared favorably with those from other series and demonstrated the usefulness of this type of assessment. Ultrasonic cephalometry should be considered together with other measurable parameters of fetal size and maturity prior to deciding on the continuation or interruption of a given problem pregnancy. (12 refs.)

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18 **SANTOS-RAMOS, RIGOBERTO; & DUENHOELTER, JOHANN H.** Diagnosis of congenital fetal abnormalities by sonography *Obstetrics and Gynecology*, 45(3):279-283, 1975.

Sonographic examinations were performed on 13 patients whose fetuses had congenital malformations diagnosed before the onset of labor: anencephaly (4 cases), hydrocephaly (4), obstruction of the renal excretory system (3), iniencephaly (1), and sacrococcygeal teratoma (1). In 7 cases, the initial diagnosis was made by sonography and in 6 cases by radiography. Sonography was valuable in the detection of discrepant growth between fetal chest and head and in the recognition of fetal soft tissue abnormalities. The

early diagnosis of fetal malformation is important. Radiography has been successful in diagnosing anencephaly, gross hydrocephaly, and some forms of dwarfism. Amniography has been employed to diagnose soft tissue abnormalities, but this technique involves amniocentesis, injection of radiopaque material into the amniotic sac, and several roentgenograms. Although the radiation for a single abdominal x-ray is only 150-300mR, the individual risk is not necessarily dose-dependent. In sonography, soft-tissue outlines are visualized, but no radiation is involved. In a fetus with a soft-tissue tumor, sonography may be the simplest method for evaluating the outline and contents of the mass. (12 refs.)

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19 **CHOPRA, INDER J.; & CRANDALL, BARBARA F.** Thyroid hormones and thyrotropin in amniotic fluid. *New England Journal of Medicine*, 293(15):740-743, 1975.

Thyroid hormone and thyrotropin concentrations in amniotic fluid were studied by radioimmunoassays during pregnancy. Amniocentesis was performed in 19 patients with pregnancies of 15-19 weeks; in addition, amniotic fluid was obtained from 2 patients at 15-16 weeks and from 35 patients at 20-35 weeks. The mean thyroxine concentration was 398ng/100ml at 15-19 weeks and 440ng/100ml at 36-42 weeks. Although 3,3',5-tri-iodothyronine was undetectable (>25ng/100ml), reverse tri-iodothyronine levels were very high (132-605ng/100ml) at 15-30 weeks but decreased substantially (54-130ng/100ml) thereafter. Thyrotropin was undetectable. The mean thyroxine and 3,3',5-tri-iodothyronine levels in amniotic fluid were much lower and the mean 3,3',5'-tri-iodothyronine much higher than the corresponding values in maternal serum obtained from 5 mothers at 15-16 and 6 mothers at 36-42 weeks of pregnancy. Measuring thyroid hormones in amniotic fluid, especially 3,3',5'-tri-iodothyronine, may aid in the diagnosis of fetal thyroid dysfunction. Findings also tentatively suggest that measurement of reverse tri-iodothyronine may be useful in identification of pregnancies of less than 30 weeks' gestion. (26 refs.) (Author abstract modified)

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20 **GALPERIN-LEMAITER, H.; & KIRSCH-VOLDERS, M.** Ultrasound and mammalian DNA. *Lancet*, 2(7936):662, 1975. (Letter)

The possibility that ultrasound is genetically harmful was investigated by checking solutions of purified calf-thymus DNA photographed by electron microscope. Considerable damage was found at intensities commonly used for therapy ($1.5W/cm^2$, $1W/cm^2$, $200mW/cm^2$); all the DNA molecules were broken down. No effect was found for doses commonly used in obstetrics ($20mW/cm^2$). But a dose of $200mW/cm^2$, which has a drastic effect, is only 10 times the intensity used for obstetric diagnosis, and sonication can have short peaks of higher intensities than those shown on the machine. Exposure to ultrasound should be minimized in obstetric use, because the growing fetus is very susceptible to mutagenic agents. Study of the effects of ultrasound at medical doses on DNA in vivo should be continued. (1 ref.)

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21 **KOHN, J.** Antenatal misdiagnosis of neural-tube defects. *Lancet*, 2(7936):663, 1975. (Letter)

Total protein estimation is suggested as a practical procedure for distinguishing amniotic fluid from maternal serum, urine, or plasma to correct for possible mistakes in labeling or dispatching samples. Total protein levels in amniotic fluid are vastly below those in the serum, there is no overlap of values, and simple and rapid methods are available for estimation. A simple urea determination might be useful in differentiating amniotic fluid from urine.

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22 **GOODLIN, ROBERT C.; HAESSLEIN, HANNS C.; CROCKER, KAREN; & CARLSON, ROBERT.** Fetal cardiac interval recorder. *Journal of Obstetrics and Gynecology*, 46(1):69-75, 1975.

To increase the precision of intrauterine diagnosis, a cardiac interval monitor was developed. The recorder, which can function as a routine intrapartum monitor, measures intervals between 2 events of the fetal cardiac cycle. Although the device has been used primarily to measure the interval between the R wave of the fetal electrocardiogram and the second fetal heart sound, it can also measure aortic valve, placental, and scalp intervals. These intervals reflect cardiac performance and its alterations by drugs and acidemia. Because the Interval Recorder does not display fetal heart rate in beats per minute but rather as R-R intervals, some reeducation is required for its use. The apparatus was easily mastered, however, by interested labor room staff. (13 refs.)

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23 **WUNDERLICH, RAY C.; & HEEREMA, N. A.** Hair crown patterns of human newborns. Studies on parietal hair whorl locations and their directions. *Clinical Pediatrics*, 14(11):1045-1049, 1975.

An examination of hair whorl patterns in 404 newborn white infants showed that 98.5 percent had single parietal whorls and 1.5 percent had double. Whorls were clockwise in 93.8 percent of the infants, and counterclockwise in 4.7 percent. The types and positions (in order of decreasing frequency) were clockwise center, clockwise right, clockwise left, counterclockwise center, double, counterclockwise left, and counterclockwise right. Clockwise hair whorls seem to be shifted more toward the right side of the head, and vice versa. All parietal hair whorls were anterior to the posterior fontanel. Findings give no support to the theory espoused by some therapists of learning-disabled children that the hair whorl is situated over the dominant hemisphere of the brain. The 4 to 1 ratio of right to left hair whorls lends some support to the theory that the hair whorl tends to lie over the nondominant hemisphere. Individuals with centrally located whorls may be more likely to be ambilateral. (10 refs.)

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24 **SHIONO, HIROSHI; & KADOWAKI, JUNICHI.** Dermatoglyphics of congenital abnormalities without chromosomal aberrations. A review of the clinical applications. *Clinical Pediatrics*, 14(11):1003-1012; editor's comments, 1012-1013, 1975.

A review of dermatoglyphic findings for a number of congenital abnormalities suggests that analysis of ridge patterns in the fingers, palms, soles, and/or flexion creases can be a useful diagnostic and screening aid when combined with other clinical features of a particular disease. Ridge patterns develop in the third and fourth months of fetal life and remain unchanged apart from size increase and possible distortion by injury. Maternal rubella infection and some drug poisonings have been known to interfere with normal development of ridge patterns. Several disorders caused by a single abnormal gene and a few other disorders without established genetic basis have been reported to show abnormal dermatoglyphics. Although it was previously thought that dermatoglyphics would be most relevant to disorders related to chromosomal abnormalities, dermatoglyphic findings in the Rubinstein-Taybi syndrome, the Smith-Lemli- Opitz syndrome, and the rubella syndrome suggest that abnormal patterns may be associated with other early developmental factors. (60 refs.)

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25 **BAX, MARTIN.** Clinical analysis of the cry. *Developmental Medicine and Child Neurology*, 17(6):799-801, 1975.

Systematic study of the cry should be part of clinical pediatrics. Four aspects of cry studies in the neonatal period are clinically important: 1) the identification of potentially abnormal babies; 2)

the monitoring of sick babies; 3) the prognosis for babies recovering from potential brain damage; and 4) the quick diagnosis of certain abnormalities. An attempt should also be made to collect and analyze records of the cries of slightly older babies. Cries of babies who have left the hospital provide valuable diagnostic clues for the pediatrician, may draw attention to undesirable features in child-rearing practices, and could signal battering. Other aspects of the cry which should be investigated include the relationship of crying to speech development. (5 refs.)

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26 **DOS REMEDIOS, LEO V.; & WEBER, PAUL M.** Dynamic/static brain scintigraphy in neonates: importance of complementing the static brain scan by adding the cerebral angiogram. *Clinical Pediatrics*, 14(6):595-599, 1975.

Physicians caring for infants with possible brain disease are alerted to the value of consultation with the nuclear medicine service and addition of the nuclear cerebral angiogram to static scintigraphy in making their diagnoses. Three cases are presented to illustrate and emphasize the diagnostic scope and prognostic value of the combined techniques. In these, dynamic brain – blood perfusion studies and static scans enabled diagnoses of intracerebral hemorrhage, cerebrovascular anomaly, and cerebral malformation to be made. This combined screening procedure is safe, simple, and rapid, and may, on occasion, obviate the need for contrast angiography and pneumoencephalography, which, though more precise, are difficult and risky procedures in the ill newborn infant. (13 refs.)

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27 **LIPSITZ, PHILIP J.** A proposed narcotic withdrawal score for use with newborn infants: a pragmatic evaluation of its efficacy. *Clinical Pediatrics*, 14(6):592-594, 1975.

A system to quantify the clinical symptoms of neonatal narcotic abstinence syndrome is proposed, by which the exhibited symptoms may be scored from 0 to 20. The highest rankings are given to the most striking signs: tremor, irritability, hyperreflexia, increased muscle tone, and tachypnea. Other symptoms included are explosiveness of stools, skin abrasions, repetitive sneezing, repetitive yawning, vomiting, and fever. A study was conducted to assess the validity of the system in 41 newborns, 8 of whom had narcotic-addicted mothers. Two pediatricians, blind to the infant's histories, rated them twice daily until discharge or for 1 week. All of the newborns without a maternal history of addiction, including term and preterm infants with both normal and low birth weights, scored between 0 and 4 on all clinical signs. The 8 newborns of addicted mothers scored from 0 to 9, only a few having low scores. Results indicate a 77 percent incidence of success in identification because of a score greater than 4. In combination with the mother's history and a biochemical assay of the infant's blood and urine for narcotic content, this proposed scoring system can help in identifying the newborn of an addicted mother, in rating serial expressions of symptoms in the infant, in evaluating treatment regimens, and in determining whether to give treatment to a newborn infant with a narcotic-addicted mother. (7 refs.)

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28 **ALFI, O.; DERENCSENYI, A.; & DONNELL, G.** Chromosome polymorphism and prenatal diagnosis. *Lancet*, 1(7918):1253, 1975. (Letter)

Because polymorphism of homologous chromosomes is not uncommon, an approach for differentiating fetal from maternal karyotypes is presented. Polymorphism of homologues can readily be demonstrated by various staining methods. C-band staining best reveals the qh polymorphism of chromosomes 1, 9, and 16. For other polymorphic bands on the autosomes, Q-band staining appears to be the best method, whereas G-band staining is the least helpful. With Q-band staining, the polymorphism is manifested in very bright bands near the centromeres of

chromosomes 3, 4, 13, and 22, or in very bright satellites on 1 or more acrocentric chromosomes. In addition, a qh polymorphism in chromosomes 1, 9, and 16 may also be well visualized. Because of findings in a study of parent-child chromosomal polymorphism difference, Q-band staining is now carried out routinely on peripheral blood cultures of both parents in each case in which amniocentesis is to be performed. In 109 families studied (a child and both parents or an amniotic sample and both parents), it was found that on the basis of chromosomal polymorphism the fetal (or child) karyotype could be distinguished from that of the mother in 101 out of 109 families. This experience suggests that routine examination of peripheral blood cultures of the parents for chromosomal polymorphism is a valuable supplementary procedure in prenatal diagnosis. (2 refs.)

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29 **BROCK, D. J. H.; SCRIMGEOUR, J. B.; BOLTON, A. E.; WALD, NICHOLAS; PETO, RICHARD; & BARKER, SHEILA.** Effect of gestational age on screening for neural-tube defects by maternal plasma-A.F.P. measurement. *Lancet*, 2(7927):195-196, 1975.

Data on the efficiency of maternal plasma or serum alpha-fetoprotein (AFP) determinations for detecting fetuses with neural defects at different stages of pregnancy are presented. Maternal plasma or serum AFP concentrations were measured once between 8 and 22 weeks of gestation in each of 62 pregnancies which resulted in an infant with a neural-tube defect. Before the thirteenth week of pregnancy only 4 out of 21 cases had a value greater than twice the normal median, and only 1 of these exceeded 3 times the normal median. However, in the second trimester many of the AFP values were much higher than in unaffected pregnancies. Between 13 and 22 weeks of gestation 22 of 41 cases (54 percent) had AFP values greater than 3 times the normal median (15/19 anencephalics, 7/17 open spina bifidas, and 0/5 closed spina bifidas). In this gestational period, 30 cases (73 percent) had AFP values 2 or more times the normal median (18/19 anencephalics, 9/17 open spina bifidas, and 3/5 closed spina bifidas). Results indicate that in antenatal screening for anencephaly or spina bifida, AFP should be measured in blood taken from the mother during the second trimester. (8 refs.)

Department of Human Genetics
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30 **HAYDEN, PATRICIA W.; JOHNSON, CURTIS C.; & GUPTA, VISHNU.** A pulsed transilluminator for the infant cranium. Detection of abnormal transillumination patterns. *Clinical Pediatrics*, 14(7):627-629, 632, 1975.

A new pulsed transilluminator has been clinically tested on 222 normal newborns, 62 premature infants, and 59 older infants with possible intracranial lesions. The instrument contains a gallium arsenide infrared-emitting diode and a silicon photodetector diode built into 1 hand-held unit which can be firmly placed on the infant's head. Pulsed light diffuses in and is absorbed by the cranial structures in direct relation to their optical density. Areas filled with clear fluid give lower optical density readings. The abnormalities detected through examination with the device included hydrocephalus, cysts, caput succedaneum, and subdural hematoma complicating hydrocephalus associated with spina bifida. The significance of these lesions suggested that pulsed transillumination should be utilized in complete examination of the newborn. (6 refs.)

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31 **LEEK, A. E.; RUOSS, C. F.; KITAU, M. J.; & CHARD, T.** Maternal plasma alpha-fetoprotein levels in the second half of normal pregnancy: relationship to fetal weight, and maternal age and parity. *British Journal of Obstetrics and Gynaecology*, 82(8):669-673, 1975.

Maternal alpha-fetoprotein (AFP) levels from 100 patients during the second half of normal pregnancy were collected and analyzed, and their relationship to maternal age and parity and to fetal weight was investigated. A semiautomated radio-

immunoassay technique, which is rapid, reproducible, and inexpensive, was developed and used to analyze a total of 704 plasma samples. The results indicate that mean levels of maternal plasma AFP reached a peak at about 32 weeks gestation and fell considerably before delivery. No relationship was found between peak AFP levels and birth weight, maternal parity, or maternal age. Details of the technique and steps taken to ensure optimal, precise results from the radioimmunoassay of AFP are discussed. Because no significant correlations could be demonstrated between maternal AFP levels and the clinical parameters of the pregnancy, only the most gross pathological deviations are likely to be of prognostic significance. (28 refs.)

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32 **YLOSTALO, P.; TUDERMAN, L.; KUUTTI, E.-R.; & JARVINEN, P.A.** Amino acid composition of amniotic fluid in intrahepatic cholestasis of pregnancy, pre-eclampsia and rhesus incompatibility. *British Journal of Obstetrics and Gynaecology*, 82(10):786-789, 1975.

The composition of free amino acids in human amniotic fluid was measured in 21 pregnancies complicated with intrahepatic cholestasis (5), pre-eclampsia (12), or rhesus incompatibility (4). The obtained values were compared with those observed in 20 normal pregnancies. Amino acid concentrations in pre-eclampsia did not differ significantly from the control values, while in recurrent intrahepatic cholestasis the concentrations of 15 of the 22 acids studied were significantly or highly significantly higher than normal, the greatest increases being found in serine, aspartic acid, and leucine. Four others were 20 percent above the normal mean concentrations. The levels of 13 amino acids were significantly or highly significantly lower in rhesus incompatibility than in normal cases, with a decrease of more than 20 percent in 5 others. Proline values, however, were elevated by about 10 percent. (12 refs.)

33 **FAIRBROTHER, P. F.; DU TOIT, IRENE L.; & CHEIFITZ, R. L.** The amniotic fluid foam test and fat cell count in malnourished and well-nourished fetuses. *British Journal of Obstetrics and Gynaecology*, 82(3):182-186, 1975.

The singleton newborn infants of 136 patients in whom amniocenteses had been performed during pregnancy were studied to determine (a) whether the malnourished fetus produces pulmonary surfactant earlier than a well-grown one and (b) the effect of fetal malnutrition on amniotic fluid fat cell count. Neonatal status was determined by assessing the nutritional state, gestational age, and amniotic fluid analysis for surfactant and fat cell scores of the infants. The results showed that all but one of the fetuses who were small for their gestational age (malnourished) had the 2 maximal foam scores when amniotic fluid was obtained within 5 days of delivery. These scores were never obtained in well-nourished fetuses prior to 38 weeks but were common after that time. Amniotic fluid fat cell count also was higher in the malnourished fetuses. Since the foam score is an index of pulmonary surfactant, it seems that a malnourished fetus produces pulmonary surfactant earlier than a well-nourished fetus. A foam score of 3 or 4 prior to 38 weeks would therefore seem diagnostic of intrauterine malnutrition, but a low foam score would not exclude such a diagnosis, since the foam score may rise from 0 to 4 over a period of one week. The need for serial amniocentesis is a serious limitation to the application of this principle to practice. Results also indicated that the fat cell count is not determined by gestational age alone, and that the fat cell count and foam score are related variables.

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34 Mass screening for cretinism. *Lancet*, 2(7930):356, 1975. (Editorial)

The case for routine screening of infants for cretinism (hypothyroidism), a rare but treatable cause of MR, is presented. Cretinism can be easily missed until later in the first year of life, and early replacement therapy is unfortunately essential. In a Great Ormond Street series, 14 out of 19 children diagnosed and treated before 3 months of age had intelligence quotients over 90, whereas only about a third of those treated later reached this level. Until recently only small series of infants have been studied, because of the quantity of blood needed for macromethod testing of thyroid function. But now micromethods permit testing of large numbers. In Canada, 47,000 newborns have been studied by a cheap, reliable

micromethod using the T4 test, which has revealed an incidence of hypothyroidism of 1 in 7,000. In a smaller series from the U.S., a thyroid-stimulating hormone screening procedure was employed, and an incidence of 1 in 8,500 was found. These figures present a serious case for routine screening. (8 refs.)

35 **CAMPBELL, S.; PRYSE-DAVIES, J.; COLTART, T. M.; SELLER, MARY J.; & SINGER, JACK D.** Ultrasound in the diagnosis of spina bifida. *Lancet*, 1(7915):1065-1068, 1975.

The use of ultrasound examination of the fetal head and spine in conjunction with alpha-fetoprotein estimations of maternal serum and amniotic fluid is described in 3 cases out of over 140 in which the combined techniques have been used. In one case ultrasound detected no lesion, although alpha-fetoprotein levels were above normal (41.5μg/ml in amniotic fluid; 295μg/ml in maternal serum). The pregnancy was terminated, but neither meningomyelocele nor spina bifida was present. In another case ultrasound failed to detect a small lumbrosacral meningocele, indicating that lesions less than 1cm will probably escape the technique, owing to limitations imposed by lateral resolution. In a third case ultrasound diagnosed a dorso-lumbar meningomyelocele but did not discover an internal hydrocephalus. Ultrasound may be used to confirm and define spina bifida in cases with raised alpha-fetoprotein levels and to aid in diagnosis of skin-covered spinal lesions not amenable to diagnosis by alpha-fetoprotein. It is also useful in obtaining uncontaminated specimens of liquor amnii and in producing accurate estimations of fetal maturity. (19 refs.)

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MEDICAL ASPECTS – Prevention and Etiology (General)

36 **KELLY, THADDEUS E.** Genetics. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 8, pp. 149-166.

Within the concept of an interdisciplinary approach to the diagnosis and management of handicapping disorders in children, the clinical and laboratory skills of a clinical geneticist may prove critical to a rational program for any child. Although the responsibility for a determination of the basic cause of a child's disability rests with the whole team, the increasing complexity of clinical and laboratory techniques that are available for this determination makes the clinical geneticist necessary for the completeness of the total appraisal. After a thorough and appropriate program of evaluation and management is established for their child, a family can begin to incorporate genetic counseling into future family planning. Amniocentesis, radiographic studies, and amniography, sonography, and fetoscopy are among the techniques for prenatal diagnosis available for a number of disorders. Prenatal diagnosis is applicable only in those instances in which a couple has been identified as being at risk of having a child with a specific disorder for which accurate and safe prenatal diagnostic techniques are available. The emphasis of genetic counseling should be on the means of decision making, not the decision itself. (2 refs.)

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37 **NADLER, HENRY L.** Present status of the prevention of neural tube defects. *Pediatrics*, 55(6):751-753, 1975. (Editorial)

Some recent developments in the prevention of myelomeningocele are discussed. Severe fetal neural tube defects may be detected by a variety

of techniques, including X-radiography, ultrasonography, fetography, fetoscopy, and biochemical analysis of amniotic fluid. Interpretation of the results of direct fetal visualization is difficult, and the technique is potentially dangerous. The optimal way of monitoring pregnancies at risk for significant open neural tube defects is ultrasonography in combination with amniocentesis and assay of alpha-fetoprotein levels in amniotic fluid. Anencephaly has also been confirmed by immunological detection of beta-trace proteins of cerebrospinal fluid in amniotic fluid, but additional data are necessary to determine specificity and reliability. Preliminary data suggest that open neural tube defects may be associated with elevated maternal serum alpha-fetoprotein levels early in pregnancy. Prospective studies evaluating these procedures are underway. (13 refs.)

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38 **SCHRAG, PETER; & DIVOKY, DIANE.** Screening for deviance and other diseases. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control*. New York, New York: Pantheon, 1975, Chapter 4, pp. 108-131.

Very few American children begin school without exposure to some combination of tests, and many of them are currently being screened systematically by schools, state health departments, community clinics, or private physicians by the time they are 4 years of age. For an increasing number, the results of medical, dental, and psychological screens are being stored in centralized data banks maintained by the states or by local public health agencies. The pressure for screening programs has been mounting since 1967, when Congress amended the Social Security Act to require states to provide screeing, diagnostic services, and appropriate treatment to all children eligible for Medicaid. A proliferating and often redundant set of state programs which mandate the periodic screening, of all public school children operates alongside the medical screen. Occasionally the screens detect a serious problem in a distinct medical area, but it is equally likely that only a set of ambiguous labels, vaguely pedagogical and vaguely medical, will be the result. In theory, screening and diagnosis are distinct, yet it is generally the screen and not the individual diagnosis, if any, which produces the label, the school placement, and the corresponding assumption of scientific accuracy.

39 **OVERTURF, GARY D.; & BALFOUR, GEORGE.** Osteomyelitis and sepsis: severe complications of fetal monitoring. *Pediatrics*, 55(2):244-247, 1975.

The occurrence of osteomyelitis of the skull in one newborn infant and streptococcal sepsis in another after use of a fetal monitoring electrode is reported. In the first case, a spiral-type scalp electrode had been inserted into the vertex and left in place 5 hours. Five days after delivery, it was observed that the infant had a large cephalahematoma over the left parietal area surrounding the site of the monitoring electrode. Upon craniotomy the superior posterior portion of the left parietal bone was found to be considerably softened. A small portion of the right parietal bone and the apex of the occipital bone were removed along with the involved parietal bone. In the second case, a small draining scalp abscess was found surrounding the site of the fetal monitor in the right parietal area; a second abscess was found later immediately adjacent to the first and was excised. The infant was discharged but readmitted 2 days after discharge with a 5x5cm area of cellulitis in the right parietal-occipital region; gram positive cocci were noted on an aspirate of the cellulitis. The wound was drained and the infant discharged on the fifth hospital day. (7 refs.)

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40 **ADAMS, JAMES M.; & RUDOLPH, ARNOLD J.** The use of indwelling radial artery catheters in neonates. *Pediatrics*, 55(2):261-265, 1975.

The use of an indwelling catheter inserted percutaneously into the radial artery of newborn infants is described and the technique of inserting and removing the catheter detailed. Mean duration of indwelling catheterization in a group of 20 newborn infants was 44.1 hours, with a minimum duration of 20 hours and a maximum of 96 hours. Continuous arterial blood pressure monitoring was carried out in 14 of the 20 patients. Very good

pressure tracings were obtained on the oscilloscope monitors, and systolic pressures correlated closely with those obtained by the Doppler method. Cultures of catheter tips at time of removal were obtained in only 4 instances; one grew *Staphylococcus epidermis*. A positive blood culture was obtained from one of 19 infants, growing a kanamycin sensitive *Escherichia coli*. Vascular complications were for the most part transient and easily resolved. There appears to be a low risk of sepsis and local infection associated with this procedure. If the catheter is placed in the right radial artery, it is possible to avoid the problem of postductal shunting that frequently makes interpretation of PO_2 determinations from the abdominal aorta hazardous. The procedure also avoids the necessity for the trauma of repeated percutaneous arterial punctures and subsequent hyperventilation. (11 refs.)

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41 **RICCARDI, VINCENT M.** Regional genetic counseling programs. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 18, pp. 410-421.

Genetic counseling is an essential part of today's preventive medicine. The Colorado-Wyoming Regional Genetic Counseling Program, now in its third year, has demonstrated the value and the feasibility of projects designed to optimize the preventive impact of genetic counseling. Through a combined approach towards education and provision of clinical services, an area larger than 201,000 square miles has been provided with genetic counseling. In the Colorado-Wyoming Program, as in all regional genetic counseling programs, simplicity and service should be emphasized in the establishment and operation of the preclinic and clinic organization, equipment collection, records, case review, and training and education. Genetic counseling is a critical part of modern medical care, and efforts must be made to demonstrate its relevance and application and, thus, to facilitate its financial backing. The conviction that the incidence and impact of genetic disease ultimately can be minimized by the uniform availability of regional genetic counseling programs must be basic to any attempts to establish these and similar programs. (8 refs.)

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42 **REILLY, PHILIP.** The role of law in the prevention of genetic disease. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 19, pp. 422-441.

The elimination of genetic disease must proceed with paramount concern for the procreative rights of the individual, and its reduction should be attempted legally through the guiding of technological implementation. In the abstract, it is not difficult to visualize a plan whereby the technology of screening would be freely available to all persons at their own discretion. However, a truly passive voluntary public health screening program accomplishes little. Any screening legislation must be written (or rejected) with a clear understanding of immediate potential benefits and risks and a recognition of policy implications; another major principle of a genetic screening law should be concern for the integrity of the individuals who will be tested. Confidentiality of genetic screening results is a complex problem that is intertwined with the decision of when to screen. For the time being, neonatal screening programs should be continued for those disorders that are amenable to treatment, and laws should be developed that inform couples seeking a marriage license that free genetic testing is available if they wish to make use of it. (61 refs.)

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43 **CONLEY, RONALD; & MILUNSKY, AUBREY.** The economics of prenatal genetic diagnosis. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 20, pp. 442-455.

The realities of chromosomal abnormalities, carrier detection, and prenatal genetic diagnosis demand that society study the cost-benefit aspects of

preventive programs. Benefit-cost comparisons based upon evaluation of the prevention of chromosomal abnormalities and metabolic disorders emphasize the longer life expectancies of the surviving infants, increased productivity, savings in institutional care costs, savings in medical costs, and the immeasurable reduction of stress, bitterness, frustration, and other psychic reactions on the part of the families, on the one hand, and the costs per genetic study of amniocentesis, abortion, and related procedures, on the other. Benefit and cost measurement is also dependent upon the choice of 1 of 3 situations after the detection of a defective fetus: the fetus is aborted and is, in effect, replaced by a subsequent infant; the fetus is aborted, and the parents decide to reduce family size, possibly by more than a single birth; and no abortion is performed, but early prenatal or postnatal treatment reduces the damage to the fetus. Even if benefit-cost and cost-effectiveness analyses do not always show favorable ratios, they may indicate that the sacrifice being requested of society in terms of expanded preventive efforts is not so great as it first appears. (9 refs.)

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44 **LAPPE, MARC.** Can eugenic policy be just? In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 21, pp. 456-475.

Assessment of eugenic objectives indicates that a eugenic program today would be premature. There is no reasonable certainty at present whether the current genetic status of the population, as it is affected by shifts in demographic variables, is undergoing a dysgenic trend or whether it is stabilizing in terms of the genetic load. No systematic study has yet been made of the socioeconomic factors that interact powerfully with environment to produce disparate incidences of congenital malformations, many of which have appreciable genetic components. Finally, there has been no adequate evaluation of the desirability of utilizing existing methodologies for genetic intervention, such as population screening for carrier status, genetic counseling, or amniocentesis–all of which are now of value to *individuals*–as means of effecting population-wide change. Nevertheless, a eugenic program could be justifiable *per se* if it improved poverty, enabled equitable distribution of resources, preserved the status quo of the gene pool, and acted justly to avoid deterioration of the gene pool. (40 refs.)

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45 **MOTULSKY, ARNO G.; & BOMAN, HELGE.** Screening for the hyperlipidemias. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 12, pp. 306-316.

In view of the limitations of medical and technical knowledge concerning the hyperlipidemias, large-scale mass screening to detect them using newborn, juvenile, or adult populations cannot be justified. Well-planned, extensive pilot studies, using all the existing biochemical and genetic information, are required to assess the utility of mass screening for these disorders. Families of hyperlipidemic patients with coronary heart disease are a high-risk group, and lipid studies of such individuals should be encouraged on a research basis. Investigations of family members of individuals clearly affected with a monogenic disorder, such as familial hypercholesterolemia, whether or not affected with coronary heart disease, should be urged. Screening for any disorder has far-reaching psychological, social, economic, and medical implications, and the total impact of the screening of large segments of the population must be assessed carefully before it is initiated. (42 refs.)

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46 **MILUNSKY, AUBREY.** *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, 506 pp. (Price unknown.)

Both genetic and environmental contributions to the causes of MR are considered in an overview of principles that form the basis of any program for the prevention of genetic disease and MR. A wide range of problems is recognized, and approaches to

their management are delineated. Detection of carriers of genetic disease, either by mass screening or by individual testing, is examined in detail. Carrier detection in X-linked disease and prenatal genetic diagnosis are emphasized. The Appendix provides information on carrier detection for selected autosomal recessive genetic disorders. (1,728 refs.)

47 **MILUNSKY, AUBREY.** Introduction. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, pp. 1-18.

Etiology is central to the theme of the prevention of MR and genetic disease, a common cause of MR. Programs of prevention are doomed to failure if they lack careful attention to the development of positive attitudes towards prevention, if doctors and patients alike are not educated simultaneously and on a continuous basis, and if expectant mothers do not have early and continuous antenatal care. Preventive programs generally should be funded and implemented by governmental public health authorities and are best located within regional medical school-hospital complexes. Carrier detection of genetic disorders that are currently not amenable to mass screening is very important. Soon, it may became law for couples seeking a marriage license first to obtain information on genetic counseling and carrier detection tests. Voluntary government screening programs do not seem to raise any insurmountable constitutional dilemmas. Compulsory screening programs are within the powers of state public health authorities if the purposes are to provide information on disease incidence and severity, protect society from the disease, and conserve health resources through disease prevention and treatment. (89 refs.)

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48 **MILUNSKY, AUBREY.** The causes and prevalence of mental retardation. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 1, pp. 19-50.

Recognition of the cause must rank as the initial step in the prevention of MR. Unfortunately, epidemiologic and other efforts to determine the causes of MR are hindered by a whole host of complicating factors. Even in the presence of a known or suspected etiology, the specification and evaluation of true causal relationships are beset by such problems as the common occurrence of subclinical or inapparent infection with unrecognized disease (cytomegalovirus infection, rubella infection, and toxoplasmosis), genetic heterogeneity and twinning, polygenically determined disease, and consanguinity. Mere recognition of malformation syndromes possibly associated with MR does not confer upon the genetic counselor the ability to arrive at a recurrence risk automatically. Pedigree analysis and analysis of the maternal milieu as well as diverse socioeconomic factors are crucial. At present, the need for genetic counseling and the advent of prenatal genetic diagnosis effectively dictate the lengths to which the physician must go in order to exclude totally all the known causes of MR before using the term "idiopathic." (219 refs.)

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49 **ASHMORE, RICHARD D.** Societal and individual orientations toward prevention. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 2, pp. 51-63.

Positive orientations towards health behavior and prevention programs, particularly those concerned with MR, can be best brought about by presenting preventive behavior within the context of an individual's entire system of beliefs, ranked from the higher-order, more general self-concepts and values, to perceptions about other people. Preventive thinking also involves an individual's beliefs and actions relative not only to his or her own health but to that of offspring as well. A comprehensive attempt to increase acceptance of preventive health practices should be aimed at the adult general public, medical personnel, and children. The public has to be convinced to support preventive action for all people, especially those at the greatest health disadvantage–the poor. Medical professionals are in a position to be potent shapers of positive orientations towards preventive health behavior and should be trained to recognize

how attitudes and beliefs fit within the total belief system of an individual. In the long run, preventive thinking can be increased only if the present younger generation can be influenced positively. (30 refs.)

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50 **MILUNSKY, AUBREY.** Genetic counseling: principles and practice. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 3, pp. 64-89.

Genetic counseling, a communications process concerned with the occurrence and the risks of recurrence of genetic disorders within a family, attempts to provide persons receiving counseling with the fullest comprehension of all the implications of the disease in question and all the possible available options. While inherent differences among counselors make a unanimous approach to the delivery of genetic counseling impossible, certain fundamental guidelines need to be provided in all cases. Accurate diagnosis, noncoercive and nondirective counseling, concern for the individual, truth, confidentiality and trust, provision of genetic counseling to both parents at the same time, and crucial timing of genetic counseling are basic principles. Knowledge of the disease, knowledge of ancillary needs, and special counselor qualifications are prerequistites for genetic counseling. Today, the overwhelming majority of individuals who provide genetic counseling have not received specific training for the task. The anticipated increasing demand for genetic counseling must not diminish the need to develop and maintain standards of excellence for genetic counseling practice. (69 refs.)

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51 **KABACK, MICHAEL M.** Heterozygote screening for the control of recessive genetic disease. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 44, pp. 90-113.

The prevention of recessive genetic disease through programs emphasizing public education, voluntary heterozygote screening, and effective genetic counseling is one of the potentially most effective modes of disease control at present, made more feasible by the predilection of certain genetic disorders for defined subpopulations, the availability of simple, accurate, and inexpensive methods to identify heterozygotes, and, for certain disorders, the capability of detecting the homozygous condition in the fetus *in utero*. Significant ethical, social, economic, and genetic issues must be recognized and addressed. In particular, detailed psychosocial and sociologic evaluations of early screening efforts of this type are essential. As the further development of carrier detection methods and prenatal diagnostic techniques for several important disorders is anticipated, detailed appraisals of prototype programs become increasingly critical. Ultimately, carrier screening and prevention may provide only an interim approach to recessive disease control, until medical research provides effective therapies or perhaps even cures for many inborn errors of metabolism. (49 refs.)

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52 **NITOWSKY, HAROLD M.** Heterozygote detection in autosomal recessive biochemical disorders associated with mental retardation. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 5, pp. 114-133.

In recent years there has been dramatic progress in the development of biochemical and other techniques for the detection of carriers of a single dose of a mutant gene. Heterozygote detection has important implications for genetic counseling. While few inborn errors of metabolism are sufficiently common to be accompanied by high heterozygote frequencies, carrier detection methods may have great value in high-risk subpopulations. In situations where antenatal diagnosis is possible for the identification of a lethal or seriously incapacitating genetic disorder, screening to identify couples at risk offers even more valid reasons for mass screening. Heterozygote identification is useful because it contributes in various ways to the knowledge of inborn errors of

metabolism. In disorders transmitted as autosomal recessive, heterozygote detection most often is dependent upon a dosage effect, the assumption being made that a single dose of a mutant gene will produce half as much of the abnormal protein as a double dose. The failure to demonstrate a gene-dose effect in the obligate heterozygote may provide insight into the nature of the molecular structure and abnormality in an inherited metabolic disorder. Measurement of circulating or excreted metabolites and the use of genetic linkage may offer useful alternative approaches to carrier detection. (138 refs.)

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53 **PINSKY, LEONARD.** Carrier detection in X-linked disease. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 6, pp. 134-181.

Mass screening programs to identify carriers of X-linked genetic disease provide 2 direct benefits to individuals at risk: for those proved to be carriers, the appearance of certain expressions of the full disease as seen in affected hemizygotes may, possibly, be prevented, minimized, or at least anticipated; and those proved not to be carriers can shed their genetic prognosis. The direct approach to carrier detection in X-linked disease depends upon the measurement of a biochemical parameter closely related to the mutant gene's primary action, or the recognition of one or more clinical or laboratory features that are sufficiently distinctive to betray heterozygosity at the X-linked locus in question. X-chromosome inactivation (the Lyon Rule), central to the theory of carrier detection in X-linked disease, has important corollaries with practical significance for recognition of differential X-chromosome inactivation in cell culture. The use of a clinical catalogue of X-linked, sex-limited, and sex-modified genetic disease may facilitate significantly the recognition of carriers. (169 refs.)

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54 **KOLODNY, EDWIN H.** Heterozygote detection in the lipidoses. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 7, pp. 182-203.

Successful large-scale heterozygote detection in the lipidoses, relatively rare and untreatable diseases, depends upon the resolution of several technical problems. Present overlap in the range of values for enzyme activity in heterozygotes with the ranges for normal controls and affected homozygotes requires further study. Currently, as a result of clinical heterogeneity, it is not possible to distinguish carriers of infantile forms of Gaucher's disease, Niemann-Pick disease, or metachromatic leukodystrophy from carriers of the adult forms of these diseases using *in vitro* assays of enzyme activity. The preparation of leukocytes and cultured skin fibroblasts is time-consuming and tedious. Finally, due to the expense of lysosomal enzyme assay, heterozygote detection in the lipidoses has been confined to high-risk situations. Major testing efforts should be directed towards couples of reproductive age, with preference given within this group to those known to be at risk. Screening should be voluntary and include provisions for lay and professional education, confidentiality, genetic counseling, and follow-up testing for the relatives of heterozygotes. (37 refs.)

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55 **ERBE, RICHARD W.** Screening for the hemoglobinopathies. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 8, pp. 204-220.

Mass hemoglobinopathy screening and genetic counseling programs, launched over the past 5 years largely as a result of available funds and increased interest by professionals and the public, have provided guidelines for the design of valid, more effective preventive programs. Voluntarism, privacy and confidentiality, and community participation in the design and operation of any screening and counseling program are essential. Optimally, screening and counseling will be carried out prior to the birth of the first

potentially affected child to a given couple. Screening, offered only after or in the context of an accurate and effective educational program directed at both the community at large and individuals, should be done initially by hemoglobin electrophoresis and should be performed only in laboratories where accuracy and proper techniques for identifying all of the various hemoglobins that may complicate the diagnosis are ensured. The educational and screening programs should be oriented mainly at high-school age persons. No one should be refused testing, genetic counseling should be readily available, and followup contacts should be pursued. (53 refs.)

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Boston, Massachusetts

56 **MILUNSKY, AUBREY; & ATKINS, LEONARD.** Prenatal diagnosis of genetic disorders. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 9, pp. 221-263.

Prenatal diagnosis, representing a cogent opportunity to prevent about two-thirds of all recognized X-linked diseases (roughly 150), has been hindered in the United States by grave concerns about the risks of amniocentesis in early pregnancy, lack of awareness of the indications for prenatal genetic studies, and unfounded criticism of facilities for amniotic fluid cell culture. Experience with prenatal diagnosis in Boston, Massachusetts, and reported cumulative experience among geneticists in the United States and Canada document findings to date on amniocentesis, amniotic fluid cell culture, and fetal abnormalities diagnosed prenatally. Advances have been made recently in neural tube defect studies and in diagnosis of biochemical and other disorders, while the hazards of chromosomal mosaicism, mycoplasma contamination, chromosomal aberrations and pH disturbances, satellites, markers, and subtle chromosomal abnormalities, as well as cell culture problems and false-positive diagnoses in biochemical disorders of metabolism, still hinder prenatal diagnosis. The organizational principles of prenatal genetic diagnosis stress the importance of ensuring that parents may have an unaffected offspring and the necessary educational, laboratory, and social steps to that end. (232 refs.)

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57 **SHIH, VIVIAN E.** Homozygote screening in the disorders of amino acid metabolism. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 10, pp. 264-276.

Homozygote screening programs for inborn errors of amino acid metabolism, some of the few genetic disorders in which MR is preventable by early diagnosis and early treatment, represent an ongoing, routine measure which has spared society an enormous financial burden and provided benefits to the affected persons and society in terms of quality of life and productivity. At present, most screening programs in over 20 countries test only newborn blood specimens; approximately half of these programs have included disorders other than phenylketonuria (PKU), with which homozygote screening began. As a result of mass screening, otherwise unobtainable information has changed the researcher's perspective of inborn errors of amino acid metabolism. Many screening programs have expanded from PKU testing alone to include testing for other amino acid metabolic disorders, with urine screening found to be an invaluable component. Recent developments in fetoscopy have allowed the sampling of fetal blood for specific diagnostic purposes, but the use of this approach for routine screening awaits further investigation. (42 refs.)

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58 **MEIER, JOHN H.** Early intervention in the prevention of mental retardation. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 17, pp. 385-409.

A review of the recent and relevant literature for both normally developing and deviant infants and toddlers indicates the rationale for instituting early intervention efforts. Animal studies have indicated the importance of close physical contact and stimulation for adequate physiological, emotional, and adaptive development. Human infant intervention research has emphasized the grim effects of maternal deprivation, felt especially in the areas of language behavior and social competence. A potentially effective schema for early intervention

with developmentally disabled children makes specific provision for early and periodic developmental screening, interdisciplinary and comprehensive evaluations, and treatment planning. Stimulus equipment, including an experimental autotelic responsive crib environment, does not supplant the mother or other caretaking adults but, rather, supplements in the caretaking process. (96 refs.)

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59 **BROOME, DIANE L.; KELLOGG, BONNIE; WEISS, BENNETT A.; & WILSON, MIRIAM G.** Needle puncture of the fetus during amniocentesis. *Lancet*, 2(7935):604, 1975. (Letter)

A 9-month-old white female developed skin lesions and abnormality of the right upper arm, apparently from needle puncture during prenatal diagnostic amniocentesis for fetal genetic abnormality. The mother was a 35-year-old nurse who had diabetes mellitus and was treated by diet alone during pregnancy. Diagnostic amniocentesis to rule out chromosomal aneuploidy associated with advanced maternal age was performed without difficulty at 17.5 weeks' gestation. At the time, ultrasonography was not used routinely to determine the position of the fetus prior to amniocentesis. No chromosomal anomaly was found, and a healthy female with a prominent scar on the right upper arm was delivered at term. Growth and development were normal, and physical examination at 9 months was normal except for the right upper arm. Two small depressed scars were revealed.

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60 **KREVER, ORACE.** Some legal implications of advances in human genetics. *Canadian Journal of Genetics and Cytology*, 17(3):283-296, 1975.

Ethical and legal issues arising from advances in human genetics are enumerated, with emphasis upon cloning, fertilization and early development in vitro, and amniocentesis and therapeutic abortion. The question of what should be done with the information obtained as a result of genetic investigations involves legal and ethical considerations directly. The ethical dilemma of the physician who discovers the XYY syndrome in the fetus or newborn infant is presented, as well as legal difficulties in cases where diagnosis of Down's syndrome or Tay-Sachs disease makes termination of the pregnancy a consideration. In Canada the criteria justifying therapeutic abortion refer to the life or health of the mother; no mention is made of the condition of fetus or child. A case of damages brought against an obstetrician for negligence in telling a mother that her case of German measles would not affect her child is cited to illustrate the assertion that even if the Canadian Criminal Code were amended to include likelihood of birth of a handicapped child as a criterion for permitting abortion, difficult social, ethical, and philosophical problems would remain. It is asserted that in matters where the interests of humanity are involved, other members of society must have a voice in addition to lawyers and scientists. (17 refs.)

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61 **LEE, CHANG Y.; DI LORETO, PANFILO C.; & O'LANE, JOHN M.** A study of fetal heart rate acceleration patterns. *Journal of Obstetrics and Gynecology*, 45(2):142-146, 1975.

Intrapartum fetal monitoring of 610 cases indicated that fetal heart rate (FHR) accelerations are responses to various stimuli and stress and are reflective of fetal well-being. Acceleration, the most frequent FHR change found in monitoring, was related to degree of fetal activity. Other major physiological causes of FHR acceleration were partial umbilical cord compression and peripheral nerve stimulation. FHR can be subdivided into 2 major categories, periodic and nonperiodic, in relation to uterine activity. Observations of FHR acceleration in early labor can indicate fetal well-being in high risk pregnancies and replace the oxytocin challenge test in situations such as previous premature labor, previous cesarean section, placenta previa, and other uterine bleeding. (9 refs.)

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Gynecology
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62 **MARSHALL, BYRNE R.; & PARISI, FREDERICK.** Maternal serum heat-stable alkaline phosphate in normal and high-risk pregnancies. *Journal of Obstetrics and Gynecology*, 45(2):136-141, 1975.

Measurement of maternal serum heat-stable alkaline phosphatase (HSAP) in 161 high-risk and 76 normal pregnancies indicated that HSAP measurement is not a specific index of placental function or fetal status. HSAP levels of patients with mild or moderate hypertension, gestational diabetes, and nontoxemic placental insufficiency did not differ significantly from levels of controls. Contrary to previous studies, HSAP levels were not significantly higher in mothers with blood group O than in mothers with blood group A. In general, above normal HSAP levels were associated with proteinuric hypertension, and low normal values were observed in pregnant insulin-dependent diabetics. HSAP levels had no consistent value in predicting fetal demise; 2 neonatal deaths were associated with normal levels. Both high and low HSAP levels, as well as rising levels within the normal range, were associated with stillbirths. (17 refs.)

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63 **CRUZ, A. C.; BUHI, W. C.; & SPELLACY, W. N.** Comparison of the fetogram and L/S ratio for fetal maturity. *Journal of Obstetrics and Gynecology*, 45(2):147-149, 1975.

Results of 2 fetal maturity tests were compared: a distal femoral epiphysis (DFE) fetogram which estimates skeletal maturity, and an amniotic fluid lecithin/sphingomyelin (L/S) ratio test which estimates fetal lung maturation. Both tests were performed within 72 hours of each other in 254 patients. The specifity of the fetogram in predicting the immature L/S ratio was 60 percent, with a false-positive rate of 40 percent. Conversely, the sensitivity of the DFE in predicting the mature L/S ratio was 61.3 percent, with a false-negative rate of 38.7 percent. There were 21 patients in whom the L/S ratio was mature, in whose fetuses no DFEs were seen, and for whom the infants delivered within 3 days of the 2 tests; all newborn infants did well and had no visible DFEs. The fetogram's significant lack of specificity and sensitivity in predicting a mature L/S ratio suggests that the x-ray DFE is unacceptable as a single maturity test in the management of complicated obstetric cases. (9 refs.)

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64 ***MARIONA, FEDERICO G., & GOODLIN, ROBERT C.** Fetal monitoring. *Journal of Obstetrics and Gynecology*, 45(2):237-238, 1975. (Letter)

Dr. Mariona stresses the value of combined biophysical and biochemical monitoring techniques in increasing survival of fetures with sublethal lesions in response to an article which suggests that routine monitoring is not practical due to insufficient case reports. When fetal scalp blood was sampled in a group of patients between 27 and 42 weeks gestation with ominous fetal heart rate patterns, fetuses did not have a high number of malformations incompatible with life. The perfection of monitoring techniques, especially indirect methods, will eventually result in electronic monitoring of labor by clinicians in daily practice. Dr. Goodlin points out that routine intrapartum manipulations change an initially low-risk parturient to a higher risk level. Routine monitoring of all low-risk parturients, which was expected to decrease the risk to the patient, actually increased the risk even more.

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65 **FEINGOLD, MURRAY.** Genetic counseling. *Journal of Obstetrics and Gynecology*, 45(2):237, 1975. (Letter)

More specific diagnostic information is advised as the basis of intelligent genetic counseling for parents concerned about the possible recurrence of multiple congenital anomalies which have resulted in neonatal death. A written account of the infant's anomalies is usually the only information available to the counselor. Information which could help in determining the correct diagnosis,

facilitating intelligent counseling, includes a photograph of the infant, chromosomal analysis, and x-ray examination of the bones.

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66 **BIGGS, JOHN S. G.** Progress in fetal assessment. *Journal of Obstetrics and Gynecology*, 45(2):227-233, 1975.

The phospholipid test of fetal lung maturity was the most common subject treated in 130 papers on fetal assessment which were published in 4 obstetric journals in 1973. Estrogen assays, ultrasonic studies, human placental lactogen, and alpha-fetoprotein measures were other major methods of fetal assessment in late pregnancy which were discussed. Reports indicated that the phospholipid assay is of greater value than any previous test of fetal maturity. The measurement of amniotic fluid creatinine is not considered an adequate index of fetal maturity. Estrogen assays are of value as the yardstick against which other tests are measured, and plasma estriol assays are gaining importance. Ultrasonic studies have a broad applicability in fetal assessment, but the clinician should be aware of the limitations of frequent measurement of biparietal diameter as a method of evaluating fetal growth and well-being. (97 refs.)

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67 **FANG, J. S.; *JAGIELLO, GEORGIANA; DUCAYEN, MERCEDES; & GRAFFEO, JOHN.** Aging and X chromosome loss in the human ovary. *Journal of Obstetrics and Gynecology*, 45(4):455-458, 1975.

Aging in the human ovary has a clear-cut impact on the genome of the oocyte, as expressed by an increase in such chromosomally abnormal syndromes as Down's, Edwards', and Patau's. Human ovarian X chromosomal loss starts at an earlier age than the chromosomal loss shown for blood. Samples of normal ovarian tissue from 133 women indicate that this chromosomal loss started between 36 and 45 years of age and increased additively to 75 years. Ovarian autosomal chromosomal loss decreased with age, while X chromosomal loss increased. There was a greater loss of all chromosomes in Ss with normal menstrual cycles than in perimenopausal and postmenopausal subjects. These correlates of aging raise the possibility that the menopause is initiated in the ovary. (13 refs.)

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68 **ADACHI, AKINORI; SPIVACK, MORTON; & *WILSON, LEO.** Intravascular hemolysis: a complication of midtrimester abortion. A report of two cases. *Journal of Obstetrics and Gynecology*, 45(4):467-469, 1975.

In a series of 1,582 consecutive intraamniotic midtrimester saline abortions, delayed intravascular hemolysis occurred in 2 patients. First manifestations of hemolysis occurred 27 and 46 hours after saline instillation, in contrast to previously reported cases of hemolysis soon after saline administration. Both cases were associated with consumption coagulopathy and prolonged hospitalization. One patient required peritoneal dialysis. Since the occurrence of this potentially hazardous complication cannot be predicted, saline abortion should always be performed in a hospital setting, and patients should be carefully monitored. When hemoglobinuria occurs, management should include maintainence of adequate renal perfusion with fluids, mannitol, and diuretics. (17 refs.)

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69 Amniocentesis appears safe, accurate. *Journal of the American Medical Association*, 234(12):1219, 1975.

In a comparison of 1,040 women who underwent amniocentesis and 922 matched controls in 9 hospitals, the procedure had no significant adverse effects on pregnancy outcome. On the basis of

these findings, Dr. Theodore Cooper, assistant secretary for health, U. S. Department of Health, Education and Welfare, has recommended midtrimester amniocentesis for larger segments of the population, wider education of physicians and laymen about the procedure, and government involvement in financing initial equipment investment. Women who should undergo amniocentesis include all pregnant women over the age of 35 years, those who have already had a child with a chromosomal anomaly, those with a family history of such anomalies or metabolic disorders, and women known to carry serious X-linked disease.

70 **HOCHBERG, H. M.; & TIMOR-TRITSCH, ILAN.** Fetal monitoring. *Journal of Obstetrics and Gynecology*, 45(4):480, 1975. (Letter)

In response to a paper on fetal monitoring, Dr. Hochberg contends that the electrocardiogram (ECG) displayed on the fetal monitor should not pass through the automatic gain control. This allows the estimation of the QRS amplitude and helps to differentiate maternal from fetal ECG. Maternal fetal ECG, which is usually well tranmitted through a dead fetus as opposed to a live one, may be difficult to differentiate from a live fetal scalp ECG. One should palpate the mother's pulse or record the mother's ECG if there is any question as to whose heart rate is being monitored. Dr. Timor-Tritsch agrees that the fetal ECG signal showed not pass the Automatic Gain Control on its way to the display. He holds that the conducted maternal ECG is not of the same configuration and amplitude as the fetal ECG, and that the two can be differentialed with the QRS detector.

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71 **OLSON, E. B., Jr.; HARTLINE, J. V.; SCHNEIDER, J. M.; & GRAVEN, S. N.** Amniotic fluid bubble stability, L/S ratio, and creatinine concentration in the assessment of fetal maturity. Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):970, 1975. (Abstract)

Amniotic fluid bubble stability and creatinine concentration were analyzed in relation to the L/S ratio and clinical outcome. Bubble stability by the standard method showed 79.5 percent (120/151) reproducibility between 2 laboratories, a 53.6 percent (81/151) correlation with the L/S ratio, and 5 false-positive predictions of pulmonary maturity out of 54. A "foamy" test correlated well with both L/S and outcome. Amniotic fluid creatinine levels showed an estimated 5-6 percent risk for respiratory distress syndrome at levels previously considered safe (>2.0mg/dl with maternal serum <0.9mg/dl) and many false-negative values. A sequential approach to amniotic fluid analysis, consisting of a bubble stability test, and then an L/S ratio if the bubble stability test is not "foamy," is recommended. The creatinine concentration test is unacceptable in any case of elective delivery.

72 **MACRI, J. N.; WEISS, R. R.; STARKOVSKY, N. A.; ELLIGERS, K. W.; & BERGER, D. B.** Maternal serum alpha-fetoprotein and prospective screening. *Lancet*, 2(7937):719-720, 1975. (Letter)

In anticipation of possible involvement in screening for neural-tube defects in the United States, 454 maternal sera from normal pregnant women ranging in gestational age from 5 to 42 weeks were evaluated for alpha-fetoprotein (AFP) content. One of the cases with elevated levels of serum-AFP at 12 weeks was followed closely. Further serial determinations suggested the presence of a neural-tube defect, but neither this nor any other gross anomaly was revealed. This case represents a false-positive result for neural-tube defect detection. Other fetal disorders may also be associated with raised levels of maternal-serum AFP. This factor should not detract, however, from the potential value of this analysis in the detection of neural-tube defects if the results are interpreted carefully. Controlled, regionalized screening programs should be conducted in the United States using maternal-serum AFP for the detection of neural-tube defects for pregnant women who have had a previous child with a neural-tube defect and those whose serum-AFP is greater than the ninety-eighth percentile within a large group of normal pregnant women. (5 refs.)

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73 **BEYTH, YORAM; RON, MOSHE; ALON, JACOB; & COHEN, TIRZA.** Alpha-fetoprotein during mid-trimester induced abortion. *Lancet*, 2(7937):709, 1975. (Letter)

Amniotic fluid alpha-fetoprotein (AFP) levels were serially investigated during the induction of 2 abortions by hypertonic infusion. Patients were a 25-year-old woman admitted in the twenty-second week of gestation and a 32-year-old woman admitted in the twenty-first week of gestation. AFP levels were estimated by electroimmunoassay using 1 percent agarose gel containing 1 percent antiserum. There was a clear and rapid rise in AFP levels within 2-4 hrs after hypertonic infusion, with levels continuing to rise throughout the period of investigation. The rapidity with which the level rose parallels that of the hormonal changes under similar conditions. This observation suggests strongly that acute placental damage resulting in fetal compromise may cause the rapid increase of AFP in the amniotic fluid. (5 refs.)

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74 **ANDERSON, GERALD G.; & STEEGE, JOHN F.** Clinical experience using intra-amniotic prostaglandin $F^2\alpha$ for midtrimester abortion in 600 patients. *Obstetrics and Gynecology*, 46(5):591-595, 1975.

Six hundred consecutive patients received intra-amniotic prostaglandin $F^2\alpha$ ($PGF^2\alpha$), to induce midtrimester abortion. The $PGF_2\alpha$ was administered by a general population of gynecologists according to a standard protocol. This study examined whether results would be similar to those reported in various research studies. Of 600 abortions, 460 were complete, and there were no abortion failures. The most common side effects of $PGF^2\alpha$ were gastrointestinal, but these were rarely severe and were considered acceptable by both patients and staff. No seizures were observed in this group of patients. A mean abortion time of 25.9 hours in 600 consecutive patients compares favorably with data from other studies. Although earlier investigations did not suggest that intra-amniotic $PGF^2\alpha$ would be significantly more effective than hypertonic saline in inducing midtrimester abortion, there were several indications that it might be safer. The present findings indicated that $PGF^2\alpha$ can be an effective, safe, and relatively simple method of inducing midtrimester abortion when administered by the practicing gynecologist. It is suggested that the general population of gynecologists can utilize $PGF^2\alpha$ to produce clinical results similar to those of research-oriented studies. (15 refs.) (Author abstract modified)

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75 **LESINKI, JOHN.** High risk pregnancy: unresolved problems of screening, management, and prognosis. *Obstetrics and Gynecology*, 46(5):599-603, 1975.

The concept of the high-risk pregnancy has been used in many studies in the field of maternal and child health but is still burdened with problems to be solved, not the least of which is the achievement of a simple, reliable screening technique. Present screening methods for high-risk pregnancies are reviewed, and their applicability and usefulness in determining methods of management and prognosis in obstetric programs are discussed. These screening methods are not only complex, they are not well validated. Because there is no consensus among investigators regarding what the appropriate high-risk factors are within different populations, the incidence of high-risk pregnancies in the United States has been reported to range from 16 to 55 percent. These high-risk factors must be quantified if the values of various regimens of obstetric care are to be measured and if prognostic success is to be obtained. Efforts at prediction should not cease with the current pregnancy but should extend to subsequent reproductive performance. Reevaluation, and continuing meticulous evaluation, of regimens of care for high-risk pregnant patients are needed. This long-range approach to prognosis and better regimens of care could not only improve patient care during the current pregnancy but also become an essential factor in achieving optimal results throughout reproductive life. An extensive bibliography of studies of high-risk pregnancies is presented. (42 refs.)

76 **GERBIE, ALBERT B. & SHKOLNIK, ARNOLD A.** Ultrasound prior to amniocentesis for genetic counseling. *Obstetrics and Gynecology*, 46(6):716-719, 1975.

Ultrasonic placental and fetal head localization before amniocentesis may minimize the risks of the procedure and increase the accuracy of prenatal genetic diagnosis. A series of 30 amniocenteses which were performed in conjunction with ultrasonography between the fourteenth and sixteenth weeks of gestation is reported. Following genetic counseling and consultation with the patient's obstetrician, ultrasonic B-scan placentography and fetal cephalometry were performed using a "gray scale" unit (ROHNAR 5530). Biparietal diameter was determined after localization of the placenta and fetal head. The site of amniocentesis was based on type of fetal presentation and placenta location. In only 7 of the patients was the fetus in the vertex position; 19 were breech, and 4 showed a transverse lie. The placenta was "low-lying anterior" in 4 patients, "wrap-around" anteroposterior in 3, posterior in 11, and anterior-fundal in 12. Ultrasound permits choosing a site other than low midline with a low-lying anterior placenta; with a posterior placenta, the insertion within the amniotic cavity should stop short of the placenta. Diagnostic use of ultrasound in early pregnancy is considered safe, with no ill effects on either fetal or maternal chromosomes having been noted. In this series, there were 3 bloody taps, but in 2 the amniotic fluid became clear after clearing the needle with the first syringe. There was no instance of fetal injury due to the spinal needle, and none of the patients aborted. Although complications of amniocentesis in the second trimester have been very few, it seems worthwhile to try to decrease even this small risk by the use of ultrasound. (27 refs.)

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77 **BINDER, RICHARD A.; JENCKS, JUDITH A.; RATH, CHARLES E.; & CHESLEY, JAMES.** Nitroblue tetrazolium reduction test in pregnancy. *Obstetrics and Gynecology*, 45(3):299-301, 1975.

The use of the nitroblue tetrazolium (NBT) dye reduction test as a screening method for bacterial and fungal infections is widely recognized. Levels have been reported to be falsely elevated in the pregnant state. A prospective study is reported in which the NBT test was performed in 2 different populations: a control group of 33 physicians, technicians, and patients without fever and infection; and a study group of 124 pregnant patients including cases from every month of gestation. NBT test results are expressed as either the "resting" or the "latex stimulated" score. Findings in the pregnant patients were indistinguishable from those in the controls. The median resting NBT score of the controls was 8 percent, that of the pregnant group 9 percent; the median latex stimulation score in the control group was 92 percent and for the study group, 91 percent. Seven of 8 elevated levels were attributable to infection or allergy. The NBT test can be used to screen for bacterial and fungal illnesses in a febrile pregnant patient as well as in the general population. (8 refs.)

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78 **BEGUIN, F.; YEH, S.-Y.; FORSYTHE, A.; & HON, E. H.** A study of fetal heart rate deceleration areas: II. Correlation between deceleration areas and fetal pH during labor. *Obstetrics and Gynecology*, 45(3):292-298, 1975.

Three fetal heart rate (FHR) deceleration areas of fixed durations related to the onset of the concomitant uterine contraction in 66 patients (31 with complicated deliveries and 35 with labor induced or augmented with oxytocin) were evaluated with a small digital computer during labor. Area E (early) was measured during a 40-second period at the onset of a contraction, Area L (late) was measured during the following 40-second period, and Area R (remainder) during a third period of 60 seconds. The correlations between these areas and the fetal scalp blood pH values were studied. The deceleration occurring 80-140 seconds after the onset of each uterine contraction during the 20 minutes preceding the fetal blood sampling yielded the best correlation with fetal pH values. Therefore, a correlation between FHR deceleration areas and fetal pH values exists, but it is too poor to be used alone for clinical purposes. In 2 of the 66 cases, the beat-to-beat variability was a better indicator of

the fetal condition. In addition to FHR deceleration area, base line FHR variability should be considered in predicting fetal condition. (14 refs.)

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79 **WEINBERG, PAUL C.; LINMAN, JOHN E.; & LINMAN, SALLY K.** Intraamniotic urea for induction of midtrimester pregnancy termination: a further evaluation. *Obstetrics and Gynecology*., 45(3):325-327, 1975.

An assessment was made of 40 percent hypertonic urea as a potentially safer abortifacient than hypertonic saline for midtrimester abortion. Five hundred and eight patients were given a 40 percent hyperosmolar solution of urea by amniocentesis during weeks 16-19 of gestation. Oxytocin was administered in an intravenous infusion following intraamniotic injection of urea to shorten the injection-abortion interval. Fetal demise was induced in all patients. The mean injection-abortion interval was 43.4 hours in those patients aborting within 7 days (85.8 percent of the total group); 76 percent aborted within 72 hours. Complications from the procedure included endometritis (7.1 percent), hemorrhage (1.4 percent), and nausea and vomiting (7.7 percent); 29.3 percent required operative completion of the abortion (placental removal 12 hours after passage of the fetus). There were no cases of hypernatremia, cardiac arrest or collapse, clinically evident coagulopathies, or cervical lacerations. The findings support the conclusion that urea is a safer intraamniotic solution than hypertonic saline for midtrimester pregnancy termination because of the absence of life-threatening sequelae. The complication rates for the amniocentesis procedure are within the range reported for other agents. (2 refs.) (Author abstract modified)

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80 **NEWMAN, NATHAN.** A theoretical framework for societal programming to meet the developmental needs of retarded children. *Dissertation Abstracts International*, 36(5):3122A-3133A, 1975. 217 pages. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-24,235.

An exploratory study to develop a conceptual model for societal programming to facilitate the development of children in accordance with their inherent potential is described. The model provides a framework for viable programs to actualize every child's developmental potential and human worth. Study of the dynamics of MR led to the conclusion that this social problem is largely an inevitable, structural consequence of the social-political dynamics of our society, which affects the developmental potential of all children. A conceptual model for prevention must address the issues of widespread poverty, hunger, malnutrition, neglect and exploitation, stultifying education, and inadequate health care which are destructive environmental aspects of life. An economic and political system of which most MR is an intrinsic aspect must be replaced with an alternative system constituted to preclude MR as a structural possibility. Such a system must be shaped by alternative value premises of cooperation in pursuit of collective interests, and by an implicit concept that people are of equal worth and entitled to equal social, economic, civil, and political rights and liberties. Only an approach designed to modify the social structure which produces individual dysfunction will ultimately resolve the problem of MR.

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81 **NOON, CLARE.** The right to reproduce. *Lancet*, 2(7936):655, 1975.

A case of proposed sterilization of an 11-year-old girl with Sotos syndrome was referred to court, where it was decided that the operation was contraindicated and should not be performed. The girl's mother, afraid that upon reaching puberty her child would be seduced and might bear an abnormal infant, discussed the case with a pediatrician and a consultant gynecologist, who agreed to perform the operation. An educational psychologist involved in the case applied to have

the girl made a ward of the court, which was done. The court in wardship held that the operation involved the deprivation of a basic human right, and that performing it for nontherapeutic reasons without consent would violate this right. (The girl could not possibly have given an informed consent). After 3 consultants presented evidence that sterilization was not medically indicated and should not be performed, the court ruled that since the girl's future prospects were unpredictable, as her mental and physical condition had improved; since in later years she would probably be capable of making her own choice; and since the realization of what had been done to her in later years could be emotionally devastating, the operation should not be performed.

82 **AUBRY, RICHARD H.; ROUKE, JAMES E.; CUENCA, VIOLETA G.; & MARSHALL, LINDA D.** The random urine estrogen/creatinine ratio. A practical and reliable index of fetal welfare. *Journal of Obstetrics and Gynecology*, 46(1):64-68, 1975.

A series of studies has indicated that a random urine estrogen/creatinine (E/C) ratio is a satisfactory, practical, and reliable index of fetal welfare for the majority of patients. Estriol, total estrogen, and creatinine measures were analyzed on biweekly 24-hour and paired random urine samples in 20 Ss during the last 20 weeks of pregnancy. Urinary estrogen excretion bore a relatively constant relationship to estriol excretion; 24-hour creatinine excretion remained quite constant, and values of E/C ratio in the 24-hour urine and the paired random urine were well correlated. The 24-hour urine E/C ratio would be predicted from the paired random E/C ratio to within less than ±5 with 95 percent confidence. A large clinical experience indicates that less than 10 percent of high risk obstetric patients require 24-hour urine collections. (24 refs.)

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83 **DE CASTRO, A. FERNANDEZ; USATEGUI-GOMEZ, M.; & SPELLACY, W. N.** Amniotic fluid components as determinants of fetal maturity. *Journal of Obstetrics and Gynecology*, 49(1):76-79, 1975.

Six amniotic fluid components were analyzed to determine the most desirable amniotic fluid test or combination of tests for prediction of fetal maturity. Fluid was drawn from 99 Ss between 22 and 40 weeks of gestation. Components analyzed were amylase activity, the lecithin to sphingomyelin (L/S) ratio, percentage of fat cells, and the concentrations of protein, creatinine, and bilirubin. When L/S ratio was compared to bilirubin, creatinine, fat cells, amylase, or protein, no single parameter or combination of parameters gave more correct results in the prediction of whether pregnancies were below or above 36 weeks of gestation, except for the fat cell concentration in pregnancies of less than 36 weeks. A few combinations of tests decreased the error significantly. In the prediction of infant birthweight, no single test or test combination showed significantly more accuracy or less error than the L/S ratio. (18 refs.)

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84 **KENISTON, RICHARD C.; PRESCOTT, GERALD H.; & *PERNOLL, M. L.** Effects of freezing and thawing on certain properties of early gestation amniotic fluid. *Journal of Obstetrics and Gynecology*, 46(3):279-281, 1975.

Possible changes in total protein and antigenicity as a result of repeated freezing and thawing were studied in 6 amniotic fluids from 15 to 17 week gestations. When fluid was rapidly frozen and thawed up to 10 times within a few days, there was no significant loss of total protein. Antigenic properties of the amniotic fluid, as measured by the number of precipitin bands formed with immunoelectrophoresis, were not altered by repeated freezing and thawing. Amniotic fluid lost its homogeneity on freezing, with the sample becoming stratified. If the sample was not resuspended before analysis, falsely low or falsely high values for total protein were obtained. The extent of layering is a function of the number of

freezings and thawings the sample has undergone without being resuspended. Repeated freezing and thawing of amniotic fluid does not significantly alter either total protein content or antigenic properties if the sample is resuspended prior to analysis. (15 refs.)

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85 **HAGEN, DAVID.** Maternal febrile morbidity associated with fetal monitoring and cesarean section. *Journal of Obstetrics and Gynecology*, 46(3):260-267, 1975.

Data on febrile morbidity for 793 private and clinic patients delivered by cesarean section were evaluated to determine whether or not fetal heart rate monitoring may cause adverse effects. Patients were divided into 3 groups: 1) those without labor and without monitoring; 2) those delivered after labor onset, but without monitoring; and 3) those with monitored labor preceding abdominal delivery. Among private patients, morbidity was consistently higher in monitored patients with comparable lengths of labor and durations of membrane rupture. Morbidity outcome was not affected by the number of vaginal examinations, duration of monitoring, or number of fetal scalp electrode applications. The relationship between monitoring and morbidity did not hold for clinic patients, who have a high intrinsic morbidity rate. The adverse effects of maternal morbidity resulting from fetal monitoring are probably far outweighed by its potential benefits. (5 refs.)

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86 **DUENHOELTER, JOHANN H.; & GANT, NORMAN F.** Complications following prostaglandin $F^2{}_a$-induced midtrimester abortion. *Journal of Obstetrics and Gynecology*, 46(3):247-250, 1975.

Although prostaglandin $F^2{}_a$ ($PGF^2{}_a$) was effective in inducing abortions in 87 percent of 122 patients between 14 and 20 weeks gestation, complications were noted in 52 patients. With doses recommended by drug manufacturers, significantly more multiparous than primigravida patients aborted within 16 hours, but mean duration between injection and abortion was not significant. Complications included fall in hematocrit of more than 5 percentage points (16 patients), infections requiring antibiotics (18 patients), failure to abort within 48 hours of initial injection (16 patients), cervical lacerations (4 patients), and uterine rupture (1 patient). A high risk is associated with abortion after 14th week of pregnancy. (21 refs.)

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87 **LOWENSOHN, R. I.; YEH, S. Y.; FORSYTHE, A.; & HON, E. H.** Computer assessed fetal heart rate patterns and fetal scalp pH. A preliminary study. *Journal of Obstetrics and Gynecology*, 46(2):190-193, 1975.

In a study designed to determine whether it is possible to use a set of biophysical parameters to determine a biochemical measurement of the fetus during labor, computer processed fetal heart rate patterns were used to predict fetal scalp blood pH. Data from 45 patients resulted in an uncorrected accuracy in predictions of 90 percent overall. Corrected accuracies were 91 percent on prediction of high pH and 72 percent on prediction of low pH. It may be feasible to use automated biophysical techniques primarily for routine fetal surveillance, using fetal scalp blood sampling only when indicated. (13 refs.)

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88 **HUGHES, ARTHUR.** Teratogenesis and the movement of ions. *Developmental Medicine and Child Neurology*, 17(1):111-114, 1975.

The movement of sodium in the early chick embryo was studied by means of the pyroantimonate cytochemical reaction of Komnick in an attempt to elucidate the origin of teratogenesis. Findings indicated that mechanisms exist for the control of the movement of monovalent ions and

that sodium is extruded during gastrulation and neurolation. Ratios of sodium to potassium were abnormally high in chicks with head abnormalities. The failure of control of ionic movements in early development may be associated with the origin of neural tube defects. (9 refs.)

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89 **HOOK, ERNEST B.** Delaney clause for birth defects. *Science*, 187(4177):601, 1975. (Letter)

Any regulation for birth defects that ignores dosage or species considerations, as a Delaney regulation dose, is likely to have unexpected consequences. It is probable that for any agent x one can find a species y and a dosage z, such that at dose z or greater, x is teratogenic in y. A Delaney regulation for birth defects would probably lead to a ban on a supplement of vitamin D in any dose in milk. It is uncertain whether such a regulation would diminish the incidence of human birth defects, and the net effect on public health might be negative. (1 ref.)

Birth Defects Institute
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Albany Medical College
Albany, New York 12208

90 **CULLITON, BARBARA J.** Intensive care for newborns: are there times to pull the plug? *Science*, 188(4184):133-134, 1975.

With the proliferation of neonatal intensive care units, more and more newborn infants with conditions that would formerly have been fatal within weeks or months of birth are being saved. The question arises whether these infants should be considered normal or whether life support ought to be withdrawn from those who have little chance of partaking in normal human experience. Conveners of a conference at the Valley of the Moon, northern California, attempted to formulate a moral policy for the critical consideration of health professionals involved in neonatal care. They concluded that: every baby possesses a moral value entitling it to medical and social care; parents are principally responsible for all decisions on the well being of their newborn; the state has an interest in the proper fulfillment of responsibilities and duties regarding the well-being of the child; the medico-moral principle of doing no harm without expecting compensatory benefit for the patient should prevail; the courts should weigh heavily prognoses regarding quality of life and the injunction to do no harm; it is permissible to hasten death of an infant who is beyond medical intervention if it is judged that its life will be marked by pain or discomfort; it is ethical to recommend that therapeutic care for an infant with a poor prognosis be terminated to provide care for an infant with a better prognosis.

91 **LEVY, HARVEY L.** Newborn metabolic screening: past and present. *New England Journal of Mecicine*, 293(16):824-825, 1975. (Editorial)

Neonatal screening for metabolic disorders should be accompanied by expert clinical evaluation and care and equally expert and detailed biochemical analysis. One of the best examples of the fruit this combination can yield is the elucidation of defect in a case of phenylketonuria reported by Kaufman and his coworkers. They found that the defect in a newborn infant identified as at risk for phenylketonuria by neonatal screening was not in liver phenylalanine hydroxylase but in dihydropteridine reductase, which maintains the availability of tetrahydrobiopterin, a necessary coenzyme for phenylalanine hydroxylase. Brain damage in the infant is thought to have been due to a derangement in neurotransmitter function, since dihydropteridine reductase is also responsible for the synthesis of dopamine, norepinephrine, and serotonin. Although there is thought to be no efficacious therapy, concerted study of all such patients might yield important therapeutic information. Kaufman's paper underlines the fact that metabolic disorders having certain biochemical findings in common may differ from one another in clinical importance and therapeutic need. Galactosemia and homocystinuria, for example, are characteristic of several different disorders with different clinical and therapeutic connotations. The real benefits for neonatal screening can be realized only in a collaborative association between all public health screening facilities and medical centers. (8 refs.)

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92 **MILUNSKY, AUBREY.** Risk of amniocentesis for prenatal diagnosis. *Science*, 293(18):932, 1975. (Editorial)

Results of the Amniocentesis Registry Project of the National Institute of Child Health and Human Development presented at the American Academy of Pediatrics Meeting in Washington on October 20, 1975, are summarized. In 1,040 cases of amniocentesis, there was no maternal mortality, and morbidity was minor. Fetal loss through death or spontaneous abortion occurred in 36 cases of amniocentesis and in 32 controls. There was no reasonable explanation for fetal loss in 14 of the 36 cases and in 18 of the 32 controls, but the greater rate of unexplained fetal loss among the controls negates any important role for the amniocentesis. The perhaps lower rate of spontaneous fetal loss in the amniocentesis group may be an effect of chance or better antenatal care (somewhat higher family incomes and a higher rate of cesarean section were noted in the amniocentesis group). There were no significant differences between the 2 groups in frequency of congenital malformation, neonatal problems, or development at 1 year of age. Risk of sensitization after early amniocentesis in the Rh-negative woman remains to be established. Termination of fetal pregnancy because of identification of a fetal disorder was necessary in only 3.6 percent of cases, emphasizing that amniocentesis can provide reassurance to parents at risk that they are able selectively to have unaffected offspring.

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93 **CRAGG, B. G.** The density of synapses and neurons in normal mentally defective and ageing human brain. *Brain*, 98:81-90, 1975.

The density of synapses and neurons were measured in 7 neurosurgical specimens of cerebral cortex and the measurements compared with those of specimens of frontal and temporal cortex from 7 aging brains (68-89 years) and 7 specimens from 3 SMR brains. MR specimens were examined to determine whether a deficiency of synaptic development might be a final common pathway in the etiology of MR, and the aging brains were compared with controls to look for a loss with aging. The average number of synapses counted was 16 or 17 percent higher in the defective brains than in the aging or neurosurgical specimens, and the average lengths of the synaptic appositions did not vary significantly among the 3 series of brains. The calculated density of synapses was 13 percent higher in the defective brains than in the aging brains, and 19 percent higher than in the neurosurgical specimens. The proportions of synapses in each quartile of the cortex were closely similar in the 3 series of brains. A deficit of synaptic development is thus not a necessary condition for the production of MR. Other possibilities for the final common pathway in the etiology of MR are discussed. (30 refs.)

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94 **JONES, MARSHALL B.; & OFFORD, DAVID R.** Independent transmission of IQ and schizophrenia. *British Journal of Psychiatry*, 126:185-190, 1975.

To determine whether schizophrenia and intelligence quotient (IQ) are transmitted independently, IQs (as gathered from school records) were examined for 85 schizophrenics, including MR Ss, and their 208 siblings. If IQ and schizophrenia are transmitted independently, the correlation among unaffected sibs should be the same as the proband-sibling correlation. Data indicated a correlation between the probands and their oldest sib of .43; between the probands and their average sib of .44; and an intraclass correlation among sibs of 33. Findings are in accord with generally reported sibling-sibling correlations. Low IQ, generally a poor prognostic sign in schizophrenia, may act as an unfavorable, largely genetic modifier in the disorder. (17 refs.)

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95 **CULLITON, BARBARA J.** Amniocentesis: HEW backs test for prenatal diagnosis of disease. *Science*, 190(4214):537-540, 1975.

The federal government has endorsed amniocentesis after considering results of a 4-year study of the procedure. The study, coordinated and supported by the National Institute of Child

Health and Human Development (NICHD), found the technique safe and accurate in the vast majority of cases. An assistant secretary for health in the Department of Health, Education, and Welfare has recommended that the Public Health Service foster use of amniocentesis by educating physicians and the public on the availability and applicability of the technique. Reservations on amniocentesis, indications for its use, and limitations of the procedure are discussed. Because amniocentesis is a preventive technique dependent on elective abortion, it cannot be considered the final answer to the problem of birth defects.

96 **CULLITON, BARBARA J.** Genetic screening; NAS recommends proceeding with caution. *Science*, 189(4197):119-120, 1975.

The Committee for the Study of Inborn Errors of Metabolism of the National Academy of Sciences has concluded that it is not yet time to recommend community mass screening for programs for genetic disease. In the light of drawbacks to the screening programs for phenylketonuria and sickle cell anemia, the National Acadmey of Sciences refrained from recommending mass screening; instead, it set forth detailed guidelines on how to set up and evaluate new programs for genetic screening. The Committee is opposed to laws or regulations making screening mandatory, but would like to see it as it matures become a part of general medical practice, to be performed only when high standards for scientific accuracy and patient followup are met. The committee recommends that commissions composed of researchers and lay members review all proposed screening programs to determine whether the public is interested in and prepared to accept screening for the disease in question; whether public facilities will be needed, and their cost; what public education will be necessary for a particular program and how it is to be carried out; whether the proposed screen is scientifically accurate; and whether there are effective treatments.

97 **FELDMAN, M. W.; & LEWONTIN, R. C.** The heritability hang-up. *Science*, 190(4220):1163-1168, 1975.

The role of variance analysis in human genetics is discussed. Analyses and arguments made by Jensen for IQ in the nature-nurture controversy are based on the analysis of variance, a fundamental methodology invented by R. A. Fisher. The method partitions variation into a proportion ascribed to the variation in each causal element and each combination of causal elements. But the partitioning of the causes of variation is really illusory: the analysis of variance cannot really separate variation resulting from environmental fluctuation from variation resulting from genetic segregation. With respect to human genetic diseases variance analysis as summarized by heritability is irrelevant to attempts to cure or eliminate such diseases and is rarely applied in genetic counseling. Arguments are presented to show that application of variance analysis to human behavioral traits cannot help to clarify the causes of a phenotypic measure. No statistical methodology exists enabling prediction of the range of phenotypic possibilities inherent in any genotype. No statistical estimation technique can provide a convincing argument for a genetic mechanism more complicated than 1 or 2 Mendelian loci with low and constant penetrance. (31 refs.)

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98 **HANID, TESSY K.** Pneumothorax and surgical emphysema in a newborn baby caused by amniocentesis. *British Journal of Obstetrics and Gynaecology*, 82(2):170-171, 1975.

The case is presented of a 23-year-old patient admitted for amniocentesis at 40 weeks gestation by dates but 36 weeks by size to help in the determination of gestational age. The amniotic fluid was heavily stained with meconium, and cesarian section was performed because of persistent fetal tachycardia. Delivery resulted in a term male infant with puncture marks in the skin posteriorly over the right side of the chest but no other abnormalities. Respiratory difficulties developed an hour after birth, and a large pneumothorax was found, as well as extensive surgical emphysema on the same side of the chest wall as the puncture marks. Resolution of the pneumothorax and emphysema was rapid and satisfactory. The case demonstrates that the pneumothorax was due to trauma sustained at amniocentesis, because the emphysema was limited to the area of needle puncture. (3 refs.)

99 **LAMB, M. P.** Gangrene of a fetal limb due to amniocentesis. *British Journal of Obstetrics and Gynaecology*, 82(10)829-830, 1975.

The case of a 26-year-old patient is described in whom amniocentesis at 14-15 weeks gestation caused unusual fetal damage. The patient had had 3 previous pregnancies, one of which resulted in a child with an open meningomyelocele. In the present pregnancy, amniocentesis revealed a high level of amniotic fluid alpha-fetoprotein, indicating the possibility of a fetus with an open neural tube defect. Termination of the pregnancy 7 days after amniocentesis revealed a fetus with a gross open spinal lesion, anencephaly, and a myelocele. Total infarction of the left arm, with macroscopic evidence of needle puncture in the supraclavicular area, was the unusual feature. This type of fetal injury should be taken into consideration when determining the place and indications for amniocentesis. (6 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Infections and intoxications

100 **FAWAZ, KARIMA; GRADY, GEORGE F.; KAPLAN, MARSHALL; & GELLIS, SYDNEY S.** Repetitive maternal-fetal transmission of fatal hepatitis B. *New England Journal of Medicine*, 293(26):1357-1359, 1975.

An unusual report of fatal hepatitis B in two 3-month-old siblings born successively to an asymptomatic carrier of hepatitis B surface antigen (HB_sAg) suggests the value of screening special maternal populations (young people likely to have acquired HB_sAg from contaminated needles) for HB_sAg. Both siblings demonstrated normal growth, development, and nutrition up to the onset of illness, delaying treatment past the time that seems to be most effective--right after birth. Severe or fatal hepatitis B in newborn infants is relatively more likely when the mother is an asymptomatic carrier of HB_sAg, although transmission of infection per se is more likely when mothers are acutely infected. Index cases exhibited 2 factors which increase the probability that antigenemia will develop in the newborn infant: 1) the presence of HB_sAg in siblings, and 2) high titer of HB_sAg in maternal serum. Another important factor (detection of HB_sAg in umbilical cord blood) was not evaluated. Because less than 1 percent of the pregnant women in the United States are HB_sAg carriers, a large scale screening program would have a low yield. (13 refs.)

101 **SMITH, ARNOLD L.** Tuberculous meningitis in childhood. *Medical Journal of Australia*, 1(3):57-60, 1975.

The 43 cases of tuberculous meningitis treated at the Royal Children's Hospital, Melbourne, over the 15 year period from January 1954 to December 1969 are reviewed. This period was chosen because it was during this time that triple drug therapy with isoniazid, para-aminosalicylic acid, and streptomycin was routinely used. The results of treatment were assessed on the child's status at the last follow-up visit and were classified as: 1) apparently normal; 2) mild sequelae, which includes mild mental subnormality or normal intelligence but with some degree of hemiparesis, deafness, epilepsy or emotional problems; 3) severe sequelae, which includes moderate or severe mental subnormality, or hydrocephalus or hemiplegia plus mild mental subnormality; and 4) death during the period of inpatient treatment. All except 2 patients were treated with the triple drug therapy. An apparently full recovery was made by 19 patients. There were 7 deaths, and 11 of the 17 affected survivors had major sequelae. There was a worse prognosis if the child was under 3 years of age, and none of the patients made a full recovery if they had a significantly depressed conscious state when treatment was commenced. Thus of 21 patients aged under 3 years, 5 died, 7 were severely affected, and 8 had only mild sequelae or were apparently normal. Of 22 patients aged over

3 years, 1 died, 4 were severely affected, and 17 had only mild sequelae or were apparently normal. (11 refs.)

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102 **JOHNSTON, ROBERT B.; HARRYMAN, SUSAN E.; SMITH, KENNETH E.; KNOBELOCH, CALVIN; BENDER, MICHAEL; MAGRAB, PHYLLIS R.; Di REGOLO, JEROLD A.; & THOMPSON, CAROLYN R.** Congenital rubella. In: Johnson, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976. Chapter 20, pp. 431-449.

Interdisciplinary communication and team mangement are important in congenital rubella to ensure that optimal care and intervention follow identification of the syndrome. In many locales, interdisciplinary clinics dealing particularly with the needs of children at high risk for any number of developmental, neurological, or medical problems have evolved. These high risk clinics are composed of a large team of specialists, usually headed by a pediatrician with a specific interest in neonatology and/or development. The interdisciplinary support team provides diagnostic and therapeutic resources. The high risk clinic emphasizes careful, detailed monitoring, preventive measures, early intervention, counseling, support, and close follow-up supervision. Attention to medical, social, psychological, and developmental concerns is provided by the team. In the case of a child who received poor treatment as a result of lack of coordination of services, hospitalization became necessary in order to achieve initial intervention efforts by orthopedics, physical therapy, speech and hearing, special education, and social services. (27 refs.)

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103 **BABITCH, JOSEPH A.; BLOMSTRAND, CHRISTIAN; & HAMBERGER, ANDERS.** Amino acid incorporation into brain subcellular fractions in experimental allergic encephalomyelitis. *Acta Neurologica Scandinavica*, 51(3):211-224, 1975.

Investigations of amino acid incorporation into guinea pig brain slices with respect to subcellular localization of the increases found in experimental allergic encephalomyelitis (EAE) are reported. The in vitro protein synthetic capacity of brain slices in the late stage (17-18 days postinduction) of EAE was increased over that of Freund's adjuvant infected controls, as determined by the rate of $_{14}$C-leucine incorporation into both tris-soluble and tris-insoluble proteins. All subcellular fractions prepared from incubated slices showed increased incorporation, with a crude nuclear fraction having the largest increase. Isolated brain mitochondria from EAE animals incorporated more amino acid protein during the late stage of the disease, while isolated microsomes and pH 5 enzymes showed decreased amino acid incorporation compared with controls in the late stage of EAE. Polyacrylamide gel electrophoresis of acidic, soluble proteins isolated from $_{3}$H-leucine labeled nuclear or synaptosomal fractions revealed that increases of incorporation were generalized, and not restricted to a few proteins. (19 refs.)

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104 **MANUELIDIS, ELIAS E.** Transmission of Creutzfeldt-Jakob disease from man to the guinea pig. *Science*, 190(4214):571-572, 1975.

Successful serial transmission of Creutzfeldt-Jakob disease from human biopsy material to guinea pigs is reported. Intracerebral and intraperitoneal inoculation of 2 guinea pigs with biopsy material from a patient with Creutzfeldt-Jakob disease produced a similar fetal encephalopathy characterized by status spongiosus 422 and 511 days after inoculation. Serial transmission from guinea pig to guinea pig was achieved in subsequent passages. Complete details of the serial transmission, the 100 percent susceptibility of all inoculated animals, the reduction of the incubation period, the duration of the disease, and the

nature and distribution of the lesions as seen with the light and electron microscope are available. (7 refs.)

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105 **FIELD, E. J.; & SHENTON, B. K.** Cellular sensitization in kuru, Jakob-Creutzfeldt disease and multiple sclerosis. *Acta Neurologica Scandinavica*, 51(4):299-309, 1975.

Scrapie, kuru, Jakob-Creutzfeldt disease, and multiple sclerosis were studied in chimpanzees for evidence of immunological response. The study was linked with that of antigenic changes in the tissues in old age, because resemblances between the changes of the normal aging process and those seen in the young animal with scrapie had been noticed. Intramuscular injection of kuru and Jakob-Creutzfeldt brain material was associated with increased sensitization of circulating lymphocytes to scrapie mouse brain and spleen. Sensitization subsided after about a month, but was followed some 90 days later by a secondary peak attributed to changes in the nervous system. Antigenicity appearing in scrapie tissues also appears gradually in normal aging mice and humans; its emergence may be a unifying factor of pathogenetic significance, representing a step in the evolution of pathological changes. An early peak occurred in animals inoculated with multiple sclerosis brain and normal brain, but neither showed a delayed second peak. There was no evidence of infection, even though all 4 animals were in intimate contact for over 200 days. (27 refs.)

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106 **OLESKE, JAMES M.** Not all children are magpies. *Pediatrics*, 55(2):297-298, 1975. (Letter)

The label "pica" has been very loosely applied to the condition of most children discovered to have elevated body burdens of lead. The child with true pica has developed an abnormal coping response to a variety of adverse maternal-child relations. The normal child between 6 months and 3 years of age may investigate readily available nonfood items in his environment by eating them; the child with pica has an actual compulsion to eat such items and actually seeks these out even after they are removed from the immediate environment. An intake questionnaire is being provided for use in our lead clinic to provide the information needed to make a more specific diagnosis of pica. Lead clinics should carefully evaluate each child and family unit before the diagnosis of pica is made, since when this label is too loosely applied it soon overwhelms the limited resources available for prevention. (5 refs.)

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107 **KURENT, JEROME E.; & SEVER, JOHN L.** Infectious diseases and the prevention of mental retardation. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 16, pp. 369-384.

The total contribution of infections that cause mental defects is underestimated. In the case of childhood infections, a long interval is required before adequate intellectual assessment can be made. The consequences of clinically inapparent and mild infections also have been difficult to evaluate. Both congenital and acquired infections can result in MR. Intrauterine infection can cause congenital brain damage; infections acquired during the neonatal period, childhood, and adulthood can also cause severe defects in intellectual functioning. One current large investigation of infections as a cause of abnormal pregnancy is included in the Collaborative Perinatal Study, which should be extended to provide additional data on infections and MR. The problem of identifying an etiologic relationship between acquired but inapparent or mild infections during childhood and adolescence in relation to mental retrospective study of new admissions to institutions for MRs should be conducted. To investigate thoroughly the possible delayed effects of aseptic meningitis caused by mumps, Coxsackie, and ECHO viruses, 5,000 patients with clinically and laboratory-confirmed diagnoses should be followed for a minimum of 5 years or until age 21,

whichever is longer. Control measures for dealing with the important infections causing MR should be used where they are available. (37 refs.)

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108 GRAEF, JOHN W. The prevention of lead poisoning. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 15, pp. 354-368.

The control of lead poisoning, a man-made disease, continues to be evasive. The combination of the ubiquitous presence of lead in the modern environment and its subtle toxicity at low levels of exposure makes it urgent that steps be taken at once to reduce its potentially devastating effect on generations of children. Control efforts are complicated further by the fact that screening principles that are useful in the environment do not necessarily apply to the screening of children. Some general guidelines for screening have emerged from a number of different approaches to the problem. Among these, emphasis is placed on the *repeated* screening of children between the ages of 1 and 6 years in high-risk areas of the United States, the annual or more frequent screening of *all* children within this age range, and the screening of all housing built prior to 1950 and the documentation and permanent recording of lead content findings for *future* tenants. (55 refs.)

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109 MATTHEWS, W. B. Epidemiology of Creutzfeldt-Jakob disease in England and Wales. *Journal of Neurology, Neurosurgery, and Psychiatry*, 39(3):210-213, 1975.

The epidemiology of Creutzfeldt-Jakob disease (CJD) in England and Wales during the decade 1964-1973 was studied. Particular attention was paid to factors previously suggested as being of possible significance in the etiology of the disease: head injury, stroke, cranial surgery, hepatic disease, febrile illness in the months preceding the onset, the consumption of brains, and a positive family history or family contact. Forty-six patients, 30 women and 16 men, were identified in whom the disease began within the decade. The mean age of onset was 57 years, with a range of from 34 to 71 years. Using the 1971 census figures, the annual incidence of confirmed CJD during this decade was 0.09 per million. No patient had sustained a stroke or serious injury, but 2 had had intracranial surgery for trigeminal neuralgia 2 and 10 years before the onset of CJD, respectively. An unexpectedly high incidence of previous craniotomy was also noted by Nevin et al. (1960); with present knowledge of the transmissible nature of the disease, this procedure might be regarded as a possible mode of entry of the agent rather than as precipitating the disease. The contact of 2 patients with ferrets may be of interest, as transmissible mink encephalopathy is transmissible to the white ferret, which may recover from the clinical disease although the brain remains infective for mink. Several geographical clusters of CJD were detected, but were not related to areas of dense urban population. It is improbable that a disease as rare as CJD could be perpetuated solely by transmission from 1 overt case to another; however, the existence of nonfatal cases that might remain infective after recovery is at least a possibility. (15 refs.)

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110 TENSER, R. B.; & HSIUNG, G. D. Distribution of herpes simplex virus in guinea pig brain following corneal inoculation. *Transactions of the American Neurological Association*, 100:246-248, 1975.

Neural spread of herpes simplex virus (HSV) following corneal inoculation in guinea pigs was studied. Newborn (1-4 days old) and young adult (1-2 months old) Hartley guinea pigs were inoculated by bilateral corneal scarification followed by dropping 0.1ml of HSV type 1 (McIntyre strain infectivity titer 10^5 $TCID_{50}$ /0.1ml) onto the corneal surface. Newborn guinea pigs developed maximal corneal clouding on day 3 which cleared by day 7; however, most of the newborn guinea pigs (3/5) died of acute HSV encephalitis on days 7-8. No significant neutralizing antibody titers could be detected in any of

the 17 adult animals tested, despite the 3-week interval between inoculation and sacrifice for some of the animals. Titers for all animals sacrificed were <1:10. Circulating antibody titers of the minimal magnitude are unlikely to have been responsible for the apparent disappearance of virus from the trigeminal ganglia and brain of the inoculated animals. These results demonstrated a significant difference in susceptibility of newborn and adult guinea pigs to neural spread of HSV and development of viral encephalitis following corneal inoculation with this virus. HSV encephalitis occurred only occasionally in adult guinea pigs following keratitis, and latent infection of the trigeminal ganglia with this virus was not obtained with the techniques used. The difference in pathogenesis of HSV infection in adult and newborn guinea pigs was probably due to differences in host defense mechanisms. The route by which virus reached the central nervous system and the neurotropism of HSV may vary with age as well.

111 **SCHWARTZ, JEROME; & ELIZAN, TERESITA S.** Ultrastructural studies of herpes simplex virus encephalitis in suckling mice. *Transactions of the American Neurological Association*, 100:237-238, 1975.

Newborn C-57 albino mice were infected with neuroadapted herpes simplex virus (HSV) as an experimental model to study the replication and spread of the virus in nervous tissue. Twenty-four-hour-old animals were inoculated with 0.01ml neuroadapted HSV containing 10^5 infectious units intracerebrally. Encephalitic animals were sacrificed 24, 48, and 96 hours after virus inoculation, and a portion of the cerebral hemisphere was prepared for electron microscopy. Ultrastructual studies of acutely encephalitic mouse brains revealed many unenveloped nucleocapsid particles in the cytoplasm. These nucleocapsids were associated with arrays of microfilaments which traverse the cytoplasm. This feature of HSV replication has not been reported previously, and is not observed during growth of virus in tissue or organ culture. Nucleocapsids in the cytoplasm may arise by unenvelopment of previously enveloped particles or by direct entrance from the nucleus through disruptions in the nuclear membrane. The electron microscopy studies suggest that possible HSV nucleocapsids use the microtubular components of fast transport to spread rapidly along nerve axis cylinders. Nucleocapsids at the cell surface may spread to adjacent cells by cell fusion, which is characteristic of HSV infection. Thus, in addition to release of infectious particles, spread of HSV infection in the nervous system may be facilitated by intracellular transport of viral nucleocapsids.

112 **ATHREYA, B. H.; & OSKI, F. A.** Neuropathy with lead poisoning and sickle cell anemia. *Journal of Pediatrics*, 86(2):315, 1975. (Letter).

Peripheral neuropathy was diagnosed in a 5-year-old girl in a chronic care institution 18 months after her admission to an acute care facility for suspected lead encephalopathy. The patient, who also had sickle cell disease, was originally treated for lead encephalopathy and then transferred to a rehabilitation unit with a diagnosis of postlead encephalopathy with right hemiparesis. Blood lead level at the time peripheral neuropathy was confirmed by nerve conduction studies was 49 μg/dl. Studies for ethylenediaminetetra-acetic acid (EDTA) mobilization of lead indicated lead levels in the urine before EDTA of 0.09mg/l and after EDTA of 1.9mg/l. After 3 months, nerve conduction studies showed improvement in all nerve velocities. Recovery was excellent. (1 ref.)

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113 **BRUNELL, PHILIP.** Antiviral drugs for the neonate – the risk-benefit ledger. *Journal of Pediatrics*, 86(2):317-318, 1975. (Editorial)

The administration of antiviral drugs to newborn infants may interfere with normal development. In preventing virus replication, agents such as cytosine arabinoside (Ara-C), adenosine arabinoside (Ara-A), and iododoxyuridine interfere with normal cell functions. Studies in mice indicate that 3 doses of Ara-C during the first week of life result in irreversible retinal and brain damage. The administration of live vaccines for prevention of congenital infections caused by herpes simplex or cytomegalovirus may not be appropriate, since these viruses usually persist following recovery from initial infections. The potential risk of treating infants with antiviral drugs suggests the value of sophisticated procedures to determine the

severity of illness and the possibility of recovery from a central nervous system infection without sequelae in the absence of treatment. A controlled double blind study is essential to determine if drugs will alter the natural history of congenital virus infection. (7 refs.)

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114 **SITARZ, ANNELIESE L.** Severe lead poisoning in a 6-month-old infant. *Journal of Pediatrics*, 86(5):810-811, 1975. (Letter)

Subdural effusions obscured the central nervous system signs of lead poisoning in a 4-month-old girl admitted for seizures. Anticonvulsant therapy (started without specific diagnosis) seemed to effect improvement until the infant was readmitted 2 months later with anemia, irritability, and listlessness. Laboratory findings included elevated free erythrocyte protoporphyrin (1,174μg/dl RBC; normal 30-220) and blood lead level and urinary coproporphyrins of 80μg/dl and "4+," respectively. Heavy densities at the ends of the long bones were seen in roentgenograms. It was ascertained that the infant had been given juice stored in an earthenware pitcher. Lead in the glaze of the pitcher was readily leached out by 4 percent acetic acid as well as by fruit juice. As of 9 months after admittance, the infant has received 6 courses of ethylenediaminetetra-acetic acid, the first 3 in conjunction with dimercaprol. Although her development is progressing at near normal levels, she still has blood levels of 60μg/dl and free erythrocyte protoporphyrin of 600μg/dl RBC. Although the etiology of the subdural fluid has not been established, it may be secondary to increased cerebrospinal fluid protein and pressure. (4 refs.)

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115 **DE CLERCQ, Q.; EDY, V. G.; DE VLIEGER, H.; EECKELS, R.; & DESMYTER, J.** Intrathecal administration of interferon in neonatal herpes. *Journal of Pediatrics*, 86(5):736-739, 1975.

Despite intensive treatment with interferon and idoxuridine, a newborn infant with disseminated herpes simplex infection failed to survive, and virus was recovered from the brain postmortem. The virus was identified as herpesvirus hominis type 2, suggesting the mother's genital tract as the source of infection. Interferon was administered intrathecally for 6 days, 6×10^5 units twice a week for 2 days followed by the same dosage once a day for 4 days. A total dose of 500mg/kg idoxuridine was given intravenously. Although no beneficial effects to the infant were observed, intrathecal administration of human leukocyte interferon did not lead to overt toxicity. Relatively high interferon titers were maintained in the cerebrospinal fluid at 12 to 24 hours after administration, and interferon did not freely cross the blood-brain barrier. The intrathecal route may not be the optimal single route for delivering interferon to all parts of the central nervous system. (15 refs.)

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116 **REIF-LEHRER, LIANE; & STEMMERMANN, M. G.** Monosodium glutamate intolerance in children. *New England Journal of Medicine*, 293(23):1204, 1975. (Letter)

The cases of 3 children with neurological symptoms that were relieved when exogenous monosodium glutamate was removed from their diets are reported. Symptoms included attacks of shuddering in 2 cases and a migraine-like syndrome or seizure equivalent in the third. The cases may be a severe childhood form of "Chinese-restaurant syndrome," perhaps representing some lesion in either the transport or metabolism of glutamate. Brain damage apparently confined to the hypothalamus has been reported in young animals after treatment with monosodium glutamate; the substance has also been reported to cause convulsive disorders in animals.

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117 **KAISER, ALLEN B.; & MCGEE, ZELL A.** Aminoglycoside therapy of gram-negative bacillary meningitis. *New England Journal of Medicine*, 293(24):1215-1220, 1975.

To delineate the best route of administration of gentamicin and tobramycin in the therapy of gram-negative bacillary meningitis in adults and older children whose fontanelles have closed, the distribution of aminoglycosides in the cerebrospinal fluid space was examined after intralumbar, intraventricular, and systemic administration during 7 episodes of gram-negative bacillary meningitis. One patient relapsed repeatedly after 20, 14, and 12 days of lumbar and parenteral aminoglycoside therapy, which produced lumbar radiculitis. Six weeks of parenteral therapy with chloramphenicol cured this patient. Culture-proved ventriculitis was present in the other 6 cases, in which gentamicin or tobramycin produced less than 10μg/ml aminoglycoside in the lumbar, ventricular, and cisternal cerebrospinal fluid. All 6 episodes treated ventricularly resulted in a bacteriologic cure. Suggested regime includes tobramycin or gentamicin systemically plus 5mg intralumbar every 18-24 hours as initial therapy in a patient who is not moribund, or in cases of failure of chloramphenicol; chloramphenicol 75-100mg/kg/day systemically when initial isolate is sensitive to chloramphenicol; tobramycin or gentamicin systemically plus 5mg intraventricularly every 18-24 hours as initial therapy in moribund patient, or in cases of failure or relapse after systemic plus intralumbar aminoglycoside. (28 refs.)

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118 **AZIMI, PARVIN H.; SHABAN, SEDAT; HILTY, MILO D.; & HAYNES, RALPH E.** Mumps meningoencephalitis: prolonged abnormality of cerebrospinal fluid. *Journal of the American Medical Association*, 234(11):1161-1162, 1975.

An unusual case of mumps meningoencephalitis in an 11-year-old boy was characterized by the persistence of an elevated cerebrospinal fluid (CSF) protein level and pleocytosis. The patient had received both penicillin and ampicillin prior to admission to the hospital with confusion and visual hallucination. He was given penicillin G potassium intravenously for 10 days in the hospital for partially treated bacterial meningitis and was asymptomatic on the 12th hospital day. CSF protein content of 320mg/100ml was seen 29 days after the onset of his illness, and CSF pleocytosis was still present 102 days after admission. It is unlikely that the small number of erythrocytes in the CSF sample on the 29th day of illness contributed significantly to the high protein content. (3 refs.)

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119 **DEHNER, LOUIS P.; & *ASKIN, FREDERIC B.** Cytomegalovirus endometritis. Report of a case associated with spontaneous abortion. *Journal of Obstetrics and Gynecology*, 45(2):211-213, 1975.

Clinical and pathologic findings are presented for a 21-year-old secundigravida female with cytomegalovirus endometritis and spontaneous abortion in the first trimester. Painless vaginal bleeding developed 1 hour before spontaneous abortion, and the history of the patient prior to onset and after the development of bleeding failed to provide any clinical clues of cytomegalovirus. Endometrial curettage revealed widespread glandular involvement by cytomegalovirus, with some glands containing as many as 3 intranuclear inclusions. Examination of the other tissue elements in the curettage and the fallopian tube failed to show other sites of viral involvement. Careful examination of endometrial tissues can add to knowledge of some of the pathogenic factors in spontaneous abortion. (20 refs.)

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120 **STECHENBERG, BARBARA W.; KEATING, JAMES P.; CHANG, MARGAN; HAYMOND, MOREY W.; DeVIVO, DARRYL; & FEIGIN, RALPH D.** Epidemiologic investigation of Reye syndrome outbreak in St. Louis schools. Paper presented at the annual meeting of the

Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):974, 1975. (Abstract)

During February and March, 1974, 1 child from St. Louis (Missouri) proper and 11 children from the greater metropolitan area were hospitalized with Reye syndrome. Acute and convalescent sera from 136 classmates at 4 of the 5 schools involved were sampled for complement fixing antibodies to influenzas A, B, and C, adenoviruses, parainfluenzas I, II, and III, respiratory syncytial virus, and varicella. Similar titers and cultures were obtained from 7 living Reye syndrome patients and from postmortem material of 1 patient who died. No viruses were recovered. Serologic evidence of recent influenza B infection was found in all 7 patients; however, definite serologic evidence for another concurrent viral illness was found in 4 of these children. Recent influenza B infection was documented in 83 percent of the sampled classmates, and adenovirus infection in 25 percent; evidence for 2 or more concurrent viral diseases was found in 81 percent of the Reye contacts.

121 **LIANG, D. C.** Reye's syndrome. *Lancet*, 2(7935):607, 1975. (Letter)

The case of a 6-year-old female patient described by Tomlinson in 1955 may have been one of the earliest reports of Reye's syndrome. The patient presented with a mild prodromal illness lasting 5 days and terminating abruptly in coma, generalized convulsions, and death within 12 hours. Blood sugar was 15mg/100ml, and cerebrospinal fluid was clear and under normal pressure with 6 lymphocytes/cu/mm. Necropsy revealed very pronounced fine fatty infiltration of the liver cells and fairly well-defined fine fatty infiltration of the proximal convoluted tubules of the kidneys. The patient's 2 sisters and mother experienced a mild illness of short duration with jaundice several days to weeks after her death. (5 refs.)

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122 **LEE, A. R.; BALINSKY, J. B.; & ROSSOUW, J. E.** Reye's syndrome and the kinetics of ornithine carbamoyltransferase. *Lancet*, 2(7935):606, 1975. (Letter)

An attempt was made to verify the association between Reye's syndrome and an abnormal ornithine carbamoyltransferase reported by Thaler et al. by checking their observations of a difference between the ornithine carbamoyltransferase from a patient with Reye's syndrome and that from a normal control. Results indicated that the Lineweaver-Burk plots of normal ornithine carbamoyltransferase for both substrates were nonlinear. The enzyme from the Reye's syndrome patient appeared to be normal. The fact that Thaler et al. analyzed liver tissue taken during the acute stage may have accounted for the difference between their levels and areas. The high Michaelis constant for ornithine at pH 7.0 reported by Thaler et al. cannot be accurate, since we obtained values for the Michaelis constant similar to those for the normal enzyme. The association between Reye's syndrome and an abnormal ornithine carbamoyltransferase cannot be regarded as proven. (6 refs.)

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123 **GLADSTONE, GWENDOLYN R.; HORDOF, ALLAN; & GERSONY, WELTON M.** Propranolol administration during pregnancy: effects on the fetus. *Journal of Pediatrics*, 86(6):962-964, 1975.

An infant born to a mother who received continuous propranolol therapy during an otherwise uncomplicated pregnancy had multiple perinatal complications which may be directly attributable to the placental transfer of this agent. The mother was receiving 240mg/day of propranolol for the management of essential hypertension at the time of conception; the dosage was reduced to 160mg/day in the fourth month of pregnancy. Perinatal problems included a small placenta, intrauterine growth retardation, fetal depression at birth, and postnatal polycythemia, hypoglycemia, and bradycardia. At 3 months of age, the infant has a normal heart rate and is developing normally. Although the half-life of propranolol in the adult is about 3 hours, the drug

may have a much longer half-life in the newborn infant, since it is metabolized by the liver; this factor may account for the persistence of bradycardia and hypoglycemia beyond the first day of life in affected infants. Pregnancies during which propranolol is administered must be considered high risk, and mother and fetus should be monitored carefully. (12 refs.)

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124 **ECHEVERRIA, PETER; LEW, MICHAEL A.; & *SMITH, ARNOLD L.** Apparent emergence of aminoglycoside-resistant *Escherichia coli* during neonatal meningitis. *New England Journal of Medicine*, 293(18):913-914, 1975.

An *Escherichia coli (E. coli)* that caused meningitis in a 4-day-old girl appeared to acquire resistance to several aminoglycoside antibiotics during therapy. Culture showed an *E. coli* resistant to ampicillin but sensitive to streptomycin, kanamycin, and gentamicin. The patient was treated with ampicillin and kanamycin intramuscularly but became apneic and opisthotonic. Parenteral and intrathecal kanamycin and then gentamicin were administered over the next 15 days. Cerebrospinal fluid cultures remained positive for *E. coli*, which was sensitive to aminoglycosides until the twelfth day of therapy, when it was reported to be resistant to kanamycin and gentamicin. A lumbar puncture and ventricular tap revealed cerebrospinal fluid diagnostic for bacterial meningitis and cultured *E. coli* resistant to ampicillin, sulfonamides, streptomycin, kanamycin, and gentamicin, but sensitive to chloramphenicol and polymyxin. The patient was treated with chloramphenicol and polymyxin but died of respiratory arrest at 52 days of age. In subsequent microbiologic studies, aminoglycoside resistance in the *E. coli* was passed to laboratory-derived naladixic-acid-resistant mutants of the sensitive strain, and eliminated from the resistant strain after treatment with sodium dodecyl sulfate. The findings implied strongly that the resistance was R-factor mediated. (14 refs.)

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125 **FRIEDRICH, EDUARD G.; & MASUKAWA, TERUO.** Effect of povidone-iodine on herpes genitalis. *Obstetrics and Gynecology*, 45(3):337-339, 1975.

Ten patients (19-50 years old) with vulvovaginal and cervical herpes simplex viral (HSV) infections were treated with a regimen of external and intravaginal povidone-iodine preparations. In 4 cases the infection was recurrent, while 6 had no prior experience with HSV. None were pregnant, but one was a juvenile diabetic and another was a renal transplant patient on immunosuppresive therapy. Symptom relief was achieved in all but the renal transplant patient and varied in onset from 1 hour after the initial treatment to 96 hours. Average symptom relief began within 33 hours and was completed within 5 days. The 4 patients with recurrence were completely asympomatic within 2-6 days and the primary cases within 3-12 days. Individually, the time to symptom relief and healing was definitely shortened compared to the natural history of the untreated disease, especially in the severe primary cases. The response of the cervical HSV lesions was remarkable, especially in view of the present lack of a good therapeutic approach to cervical and vaginal herpes. The findings are encouraging and warrant further study in a larger population with viral culture control. (6 refs.)

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126 **CUSUMANO, CHARLES L.; & MONIF, GILLES R. G.** A word of caution concerning photodynamic inactivation therapy for herpesvirus hominis infections. *Obstetrics and Gynecology*, 45(3):335-336, 1975.

Attempts to palliate viral lesions, such as herpetic vulvovaginitis, through application of photodynamic dyes (including neutral red) which enhance the inherent photosensitivity in the virus may lead to the production of oncogenic viral particles which give rise to local malignancies at a much later time. Research has shown that the inactivated or "defective" virus particles (virions) are still capable of infecting and transforming a cell. Rapp et al. reported that Herpesvirus hominis types 1 and 2 are able to transform mammalian

cells into tumor producers after inactivation of infectivity with neutral red and light. Moreover, herpesvirus DNA has been found linked to cell DNA derived from human malignant cell lines. The use of neutral red to accelerate the healing of herpetic lesions does inactivate a significant proportion of the virus; however, the defective virus produced is likely to retain its ability to infect and transform cells. A possible delay period of several years could be involved before transformed cells manifest themselves clinically as tumors. Therefore, methods of viral inactivation which depend on the induction of random pinpoint DNA lesions, such as occur in photoinactivation, are potentially dangerous and ought not to be used clinically. (13 refs.)

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127 **AMSTEY, MARVIN S.; & METCALF, SALLY.** Effect of povidone-iodine on herpesvirus, type 2, *in vitro*. *Obstetrics and Gynecology*, 46(5):528-529, 1975.

A tissue-culture system was used in experiments which tested the possibility that povidone-iodine solution (Betadine) would adequately prevent contamination of the blood samples from virus (particularly herpesvirus) on fetal membranes. Povidone-iodine at concentrations of 0.167 percent (v/v) reduced the end-point titers of Strain E.M. herpesvirus, type 2, by more than 99.99 percent. Even at concentrations of 0.0167 percent (v/v), povidone-iodine solution reduced the titers by 92 percent. The iodine solution, per se, had no effect on cultured human fibroblasts in concentrations of 1.67 percent. Thus, povidone-iodine solution was shown to be an effective viricidal agent against this herpesvirus. Translating this to clinical efficacy, however, is not always possible. Povidone-iodine has been used for topical therapy in a newborn infant with scalp lesions without benefit; an overriding reason for this lack of clinical response may be the inability of topical therapies to reach infectious virus within cells and to reach cells deep within an ulcerated lesion. It is useful to look for appropriate topical therapies for genital herpesvirus infections, or any herpesvirus infections, in order to reduce clinical symptomatology and to protect newborn infants from infection by their mothers. (8 refs.)

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128 **NAVEH, YEHEZKEL; & FRIEDMAN, ABRAHAM.** Rubella encephalitis successfully treated with corticosteroids. *Clinical Pediatrics*, 14(3):286-287, 1975.

The case is described of an 11-year-old male with rubella encephalitis in whom a successful outcome was achieved with adrenal corticosteroids. The patient was hospitalized because of fever, unconsciousness, and a convulsive episode lasting for one hour. Three weeks earlier his young sister had had rubella. The patient's body was covered with a fine erythematous rash typical of rubella, his posterior and anterior cervical lymph nodes were enlarged, and he had hyperactive tendon reflexes and bilateral Babinski responses. A presumptive diagnosis of rubella encephalitis was made. Rubella hemagglutination inhibition antibody titers were 1:64 on the second hospital day and 1:256 one week later. The EEG showed diffuse asymmetrical slowing. The treatment consisted of intravenous fluids and 300mg intravenous hydrocortisone daily for 4 days. The patient improved but on the seventh day developed fever, vomiting, and a convulsive episode associated with changes in state of consciousness and hallucinations. Oral prednisone, 60mg daily, was prescribed for one week and tapered off during the second week of treatment. The EEG improved on the twenty-fourth hospital day but was not completely normal until the sixty-eighth day. The patient was discharged later in good condition and was well at a one-year follow-up examination. The importance of early administration of full doses of corticosteroids for rubella encephalitis is demonstrated in this case. (7 refs.)

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129 **LAGERKVIST, BENGT; & EKELUND, HANS.** Cytarabine treatment of herpes simplex encephalitis in infants and small children: a report on three cases with a short review of the literature. *Scandinavian Journal of Infectious Diseases*, 7(2):81-84, 1975.

Three cases of herpes simplex encephalitis in infants and small children treated with cytarabine are reported. The effect of the treatment with 2 infants, aged 13 months and 2 months, was excellent. One 2-year-old boy who had a cerebral palsy syndrome died. The results suggest that the treatment with cytarabine should be started as early as possible, with a dosage of 3mg/kg body weight given intravenously once a day in a single injection for 5 days. The side effects of cytarabine, although numerous, were all mild or moderate and do not contraindicate a therapeutic trial. Cytarabine has several striking advantages over idoxuridine, another drug used to treat viral infections. The antiviral spectrum is similar for both drugs, but viruses in the herpes group, especially type 2 herpes simplex virus, are more sensitive to cytarabine than to idoxuridine. Also, cytarabine is not deaminated in the brain, as is idoxuridine, making cytarabine theoretically more effective in the management of herpes simplex encephalitis. Morover, cytarabine is poorly, if at all, incorporated in deoxyribonucleic acid, as is idoxuridine, which must be looked upon as a potential mutagen. Finally, the inactivation of the drugs speaks in favor of cytarabine, which is undetectable in the blood about 15min after a single intravenous injection, half the time for idoxuridine. (7 refs.)

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130 **SHARP, JOHN C. M.; & BELL, ELEANOR J.** Echovirus type 4 infections in Scotland, 1971-72. *Scandinavian Journal of Infectious Diseases*, 7(4):239-242, 1975.

An outbreak of infection due to echovirus 4 in Scotland during 1971-72 is described. Of 194 cases diagnosed, clinical and epidemiological data were obtained for 181. Most of the cases were from the industrial areas where population density is greatest. The epidemiology closely reflected previous experience in Scotland and elsewhere. Once more, and unlike the more common enterovirus types, older children (39 percent) and young adults (40 percent) formed the largest proportion of cases. The high atack rate in infants (10.5/1,000,000), especially males, may be due to a bias arising out of the greater likelihood of medical attention being sought for children in this age group. The pattern of echovirus 4 illness resembled that of the previous Scottish outbreak in 1963, with the majority of cases (82 percent) again showing meningeal involvement. The absence of deaths, the low incidence of transient paresis, and the appearance of skin rash in only 9 percent of cases, conformed to the expected pattern of echovirus 4 infection. A history of contact with other virologically confirmed and unconfirmed meningeal illness was obtained in 20 percent of all cases. The predominance of echovirus 4 infection both in 1971 and 1972 was unusual, as there is a tendency for the same virus types to recur at intervals of 4 years or more. (7 refs.)

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131 **LINDENBAUM, JEFFREY E.; VAN DYCK, PETER C.; & ALLEN, RICHARD G.** Hand, foot and mouth disease associated with coxsackievirus group B. *Scandinavian Journal of Infectious Diseases*, 7(3):161-163, 1975.

Six children and adults seen in a clinic with a clinical picture resembling hand, foot, and mouth disease (HFMD) were studied to determine the possibility of coxsackievirus group B involvement. Oral lesions (enanthem) consisting of apthous-like ulcers in the mouth and/or vesicular lesions with an erythematous base were found in all 6 of the patients. Only 1 of the patients had fever over 37°C. None of the patients appeared toxic, although 1 had malaise. No sequelae were observed. The illness in the patients with apparent coxsackievirus group B infection was clinically similar to classical HFMD produced by coxsackievirus A16. Viral agents were detected in all 6 of the patients. Coxsackievirus B5 was isolated in 5 patients and coxsackievirus B2 in 1 patient. There was no isolation of any coxsackievirus A. Paired sera were obtained from 4 of the 6 patients. All sera were tested for neutralizing (NT) antibodies

to coxsackievirus B5 and B2 and for complement-fixing antibodies to herpes simplex. A 4-fold or greater rise was found in serum NT antibody titer in the 3 patients tested with coxsackievirus B5 and the 1 patient with coxsackievirus B2. This evidence strongly suggests a close etiologic relationship between coxsackieviruses B and HFMD. (29 refs.)

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132 **ANDERSSON, SVEN-OLOF; *BJORKSTEN, BENGT; & BURMAN, LARS AKE.** A comparative study of meningoencephalitis epidemics caused by echovirus type 7 and coxsackievirus type B5: clinical and virological observations during two epidemics in Northern Sweden. *Scandinavian Journal of Infectious Diseases*, 7(4):233-237, 1975.

Two epidemics of meningoencephalitis caused by echovirus type 7 and coxsackievirus type B5 in the summer and autumn of 1973 in Umea in Northern Sweden were compared. Out of a total of 152 patients with meningoencephalitis, echovirus type 7 was recovered on 23 occasions from 19 patients and coxsackievirus type B5 37 times from 28 patients. Respiratory tract infections concomitant to the meningoencephalitis were more common in the patients with coxsackie B5 infection than in those with echo 7 infection (60 percent and 21 percent, respectively) ($P<0.001$). All patients old enough to communicate complained of headache, and all children showed irritability and feeding difficulties. Major signs of involvement of the central nervous system (CNS) were found in 5 (21 percent) patients of the echovirus 7 group and in 12 (30 percent) of the coxsackievirus B5 group. Abnormal EEG was significantly ($P<0.01$) more common in the coxsackie B5 group (70 percent) than in the echo 7 group (30 percent), indicating a more serious involvement of the CNS from coxsackievirus B5. The abnormalities consisted of diffuse abnormal activity without signs of focal involvement. (8 refs.)

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133 **BECK, ELISABETH BAK, I. J.; CHRIST, J. F.; GAJDUSEK, D. C.; GIBBS, C. J., JR.; & HASSLER, R.** Experimental kuru in the spider monkey: histopathological and ultrastructural studies of the brain during early stages of incubation. *Brain*, 98:595-612, 1975.

Lesions found in the brains of 10 spider monkeys inoculated intracerebrally with brain suspension from kuru patients were evaluated histologically and astructurally. The animals were killed by perfusion of fixative from 4 to 41 weeks after inoculation when healthy and free of neurological signs. Definite histopathological changes had occurred as early as 4 weeks after inoculation, when moderate numbers of binucleated neurons were found within the limbic cortex, the striatum, the hypothalamus, and among the Purkinje cells of the cerebellum. At later stages of incubation a moderate loss of neurons in the cerebral and cerebellar cortex and a mild to moderate proliferation of fibrous astrocytes here and also in the hypothalamus were the most striking features. The principal ultrastructural abnormalities consisted of the formation of membrane-bounded intracytoplasmic vacuoles, predominantly within dendrites, and of concentric laminar arrays derived from the endoplasmic reticulum. Concentric laminar arrays (CLAs) were found in small neurons in the deep molecular layer of the nodulus and were most numerous 4 weeks after inoculation. The formation of large numbers of CLAs in neurons of the nodulus, indicative of a hyperplasia of the endoplasmic reticulum, could also reflect an abnormal metabolism of these cells, possibly caused by the effects of the kuru agent. It is concluded that the kuru agent had spread from the site of inoculation throughout the whole of the brain within the first 4 weeks and had caused morphological changes in neurons and glial cells. The exact nature of the kuru agent remains in question. No structure reminscent of a virus or virus-like particle was observed in any of the material. (24 refs.)

134 **ELLMAN, MICHAEL H.** Salicylate ingestion in pregnancy. *Lancet*, 2(7936):665, 1975. (Letter)

The article by Dr. Collins and Dr. Turner regarding the safety of salicylate in pregnancy actually described patients taking not plain salicylate but

analgesic powders containing caffeine, phenacetin, and salicylamide as well as aspirin. It may have been the combination of drugs that caused the ill effects, rather than the salicylate alone. Patients who chronically consume analgesics may do so because of underlying disorders; moreover, there was a marked increase in cigarette smoking among the patients using analgesic powders, another factor that may have affected pregnancy outcome. It is questionable whether this study provides enough data to implicate salicylate as the sole cause of prolonged gestation, more complicated deliveries, and increased perinatal mortality.

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135 **SKOLDENBERG, BIRGIT; JEANSSON, STIG; & WOLONTIS, SIGVARD.** Herpes simplex virus type 2 and acute aseptic meningitis: clinical features of cases with isolation of herpes simplex virus from cerebrospinal fluids. *Scandinavian Journal of Infectious Diseases*, 7(4):227-232, 1975.

Clinical features, findings, and prognoses in 10 patients with aseptic meningitis in which herpes simplex virus (HSV) was isolated from the cerebrospinal fluid (CSF) are reported. HSV type 1 was identified from 1 patient, a 6-month-old boy with an acute benign aseptic meningitis. The other 9 isolates were from patients aged 16 to 26 years. Two isolates were not available for typing; the others were all HSV type 2. A significant titer rise in complement fixing antibody against HSV antigen was found in 9 of the 10 cases. During the period under study an additional 14 patients with acute nonbacterial infectious diseases of the central nervous system (CNS) had significant titer rises against HSV, although no virus was recovered from the CSF specimen (tested in 9 cases only). Two of these patients, aged 7 and 32 years, had an acute encephalitis, which was followed by severe sequelae in 1 patient and terminated in death in 1 patient. HSV type 1 was recovered from brain tissue taken post mortem from the latter case. The remaining 12 patients had an acute benign meningitis which was preceded by a genital herpetic infection in 3 of them. (33 refs.)

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136 **ROSS, CONSTANCE A. C.; & GENERAL PRACTITIONER GROUP.** Herpes zoster and recurrent herpes simplex. *Scandinavian Journal of Infectious Diseases*, 7(1):7-10, 1975.

The proportion of patients with herpes zoster who suffered from recurrent herpes simplex infection was determined. A total of 87 patients with the clinical diagnosis were seen during a 1 year period in 8 general practices. Since the total population of the 8 practices was approximately 36,000, the rate of clinically diagnosed cases of herpes zoster was approximately 2.4/1,000 persons. Of these, 78 (90 percent) had serological evidence of active infection with herpes zoster. A history of recurrent herpes simplex was obtained in 25 (32 percent) of the 78 patients with confirmed herpes zoster; 63 (81 percent) of these 78 had complement-fixing (CF) antibodies to herpes simplex. Thus, latent herpes simplex infection did not prevent herpes zoster nor modify the severity of herpes zoster. In most of the patients CF antibody to varicella zoster was not detected until the fifth day from appearance of the rash. After the acute phase of the illness, decline of varicella-zoster CF antibody was fairly rapid. This rapid rise and decline in CF antibody after herpes simplex infection compared with unchanging CF titers associated with recurrent herpes simplex infection suggests thht the mechanism of latency might be dynamic for herpes simplex virus and static for herpes zoster. (15 refs.)

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137 **EMBIL, JUAN A.; MACDONALD, JANEEN M.; & SCOTT, KENNETH E.** Survey of a neonatal population for the prevalence of cytomegalovirus. *Scandinavian Journal of Infectious Diseases*, 7(3):164-167, 1975.

A neonatal population of 542 was tested for cytomegaloviruria. Cytomegalovirus (CMV) was cultured from the urine of 3 infants. One of these had clinical signs of classical cytomegalic inclusion disease (CID). At birth, he was wasted, deeply meconium-stained and cyanotic, had poor tone responsiveness, and head circumference and body weight were 2 standard deviations below the mean for an infant of 38 weeks gestation. The mother of

this infant had a CMV complement fixing antibody titer of 128, suggestive of recent acute primary infection, and the infant's titer was 64. In the other 2 infants the infection was subclinical. Because the fetally undergrown infant is considered to be especially susceptible to intrauterine infection, such infants were classified separately. However, CMV was not isolated from the urine of any of the 77 thus classified. No association was found between the prevalence of anomalies, either major or minor, and CMV. The finding of only 3 cases of CMV infection among 542 infants indicates a low prevalence in this neonatal population, despite the high degree of susceptibility previously reported in the maternal section of the same population. The reported prevalence of CMV infection in neonates is in the range 0.55 percent to 2.5 percent; in the present study, it was 0.55 percent. (13 refs.)

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138 **STIRRAT, G. M.; & LANGER, ALVIN.** Hyperthyroidism. *Journal of Obstetrics and Gynecology*, 46(1):112-113, 1975. (Letter)

In response to a previous paper regarding the use of a beta adrenergic blockade in the control of hyperthyroidism in pregnancy, potential risks of this treatment are summarized on the basis of experiences with hypertensive pregnant Ss. In addition to bradycardia, propranolol renders the fetal heart incapable of responding to the stress of uterine contractions. High mortality (4 out of 6 babies) in moderate to severe hypertensive cases was reported, but in these cases mothers sometimes took more than 1 hypotensive drug. Evidence suggests that beta blockade cannot be recommended *de novo* in pregnancy for situations in which placental insufficiency already exists or is likely to occur. Langer's reply stresses that propranolol is not suggested as the drug of choice for thyrotoxicosis in pregnancy, but is 1 approach when other medications fail or when it is desired to alleviate severe symptoms temporarily. (8 refs.)

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139 **ATKINSON, SAMUEL M., JR.; & LANGER, ALVIN.** Hyperthyroidism. *Journal of Obstetrics and Gynecology*, 46(1):112, 1975. (Letter)

In regard to a previous article on the use of propranolol in the control of hyperthyroidism in pregnancy, the conclusion that propranolol does not have an adverse effect on either the fetus or on labor is questioned. The safety of propranolol during the third trimester has not been demonstrated, and it should be discontinued prior to labor. In cases where severe symptoms indicate a continuing need for the agent, the fetal heart rate should be continuously monitored, and a cesarean section should be undertaken in the event of fetal distress. Langer's reply emphasizes the need for further exploration of adrenergic blockade in light of the undesirable effects of other forms of therapy. Bradycardia and preeclampsia in the patients studied were not demonstrated to be drug induced. (3 refs.)

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140 **ANDERSON, GARLAND D.** Listeria monocytogenes septicemia in pregnancy. *Journal of Obstetrics and Gynecology*, 46(1):102-104, 1975.

An unusual case of maternal *Listeria monocytogenes* septicemia resulted in fetal death *in utero* in the 29th week of gestation. The patient was a 35-year-old woman with a poor reproductive history who presented to the hospital with upper respiratory distress and labor pains. Blood and amniotic fluid cultures grew out beta hemolytic gram-positive rods which on subsequent biochemical determination proved to be *Listeria monocytogenes*. Examination of the placenta revealed extensive necrosis with multiple small abscesses. A diagnosis of chorioamnionitis was made. Although the frequency of asymptomatic genital listeriosis is unknown, patients with recurrent pregnancy wastage should obtain cervical cultures for *Listeria monocytogenes*. Many antimicrobial agents are active against the organism, with erythromycin the drug of choice. (6 refs.)

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141 **D'SOUZA, BERNARD J.; LANSKY, LESTER L.; & CHO, CHENG T.** Tuberculous meningitis developing after 6 months of treatment of pulmonary tuberculosis, a complication of infection with a drug-resistant strain in a two-year-old child. *Clinical Pediatrics*, 14(8):728-730, 733, 1975.

The case of a 2-year-old boy with pulmonary tuberculosis suggests that the newer antituberculous agents are effective in patients resistant to the older and more widely employed drugs. After being treated for 6 months with isoniazid and para-amino salicylic acid, the patient developed tuberculous meningitis and was admitted to the hospital in an unconscious state. Treatment failure at a time when the pulmonary lesion was steadily resolving is attributed to the development of drug resistance rather than to failure to receive medication regularly. Rifampin and ethambutol were effective in the patient, with M. tuberculosis disappearing from the cerebrospinal fluid in 5 days. Neurological status did not improve significantly, however. Follow-up studies indicate hydrocephalus, bilateral optic atrophy, bilateral partial third cranial nerve palsy, decorticate posturing, and spastic quadriparesis. The usefulness of drug sensitivity testing for M. tuberculosis is demonstrated. (8 refs.)

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142 **VARGAS, GLADYS C.; *PILDES, ROSITA S.; VIDYASAGAR, D.; & KEITH, LOUIS G.** Effect of maternal heroin addiction on 67 liveborn neonates. *Clinical Pediatrics*, 14(8):751-757, 1975.

A retrospective study of 66 infants to assess the effects of maternal narcotic addiction indicated that 35 were of low birth weight (less than 2,500 grams), 41 had withdrawal symptoms, and 25 had measurements for head circumferences which were below the tenth percentile for gestation. Congenital anomalies were noted in 2 infants (cleft lip and palate in 1 and ventricular septal defect in the other); 8 infants died. Sixteen infants had physiologic hyperbilirubinemia, and 4 had pathologic hyperbilirubinemia. Hyaline membrane disease was documented in 2 infants. Prospective studies are indicated to determine whether intrauterine exposure to heroin has far-reaching, long-term, residual effects. (25 refs.)

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143 **MUJTABA, Q.; & BURROW, G. N.** Treatment of hyperthyroidism in pregnancy with propylthiouracil and methimazole. *Journal of Obstetrics and Gynecology*, 46(3):282-286, 1975.

A study of 21 women who received propylthiouracil or methimazole during 26 pregnancies provided no evidence that these agents are teratogenic. Fourteen children whose mothers received one of these agents were born without goiters or abnormalities. Neonatal goiter occurred in 4 infants, and 3 of these had neonatal thyrotoxicosis. Because of maternal antithyroid therapy, neonatal thyrotoxicosis was not evident immediately in 2 neonates. Five children had congenital defects. Four of the neonates with abnormalities belonged to 2 mothers. Although a genetic component to these anomalies cannot be ruled out, both mothers had been treated with thiourea drugs for periods ranging from 7 to 11 years. Although the majority of children who are exposed to these drugs *in utero* seem to have no ill effects, prolonged therapy with these agents may be undesirable. (15 refs.)

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144 **VISUDIPHAN, PONGSAKDI; & CHIEMCHANYA, SURANG.** Mima Polymorpha ventriculitis in a young infant. Problems in overcoming the infection with erythromycin intraventricularly. *Clinical Pediatrics*, 14(11):1066-1067, 1975.

Culture of the ventricular cerebrospinal fluid of a 1-month-old infant who did not respond to standard treatment for meningitis yielded *Mima polymorpha*, a pleomorphic organism which mimics other gram-negative organisms. The organism is resistant to almost all of the antibiotics available except erythromycin and chloramphenicol

col. The latter failed to eradicate the organism, but the ventricular fluid became negative after the fourth dose of intraventricular erythromycin. Although the baby thrived later, her development was retarded, spasticity of the extremities increased, and the head size became progressively larger. Ventricular shunting was needed when she was 4 months old. Ventriculitis must be looked for in newborn and young infants who do not respond to appropriate treatment of meningitis. (7 refs.)

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145 **MADAN, P. L.** Plumbism—people and pets? *Journal of the American Medical Association*, 233(7):767, 1975. (Letter)

In regard to previous correspondence, the contention that canned pet foods contain considerable amounts of lead and pose a potential health hazard for human consumption is questioned. At issue are the lack of evidence that people are eating pet food, lack of indication of lead poisoning in test animals, and the translation of data in terms of potentially toxic doses of lead for children. A potential health hazard for children may be posed by candy, chewing gum, or other confectionary materials printed with leaded ink. Such materials are often placed around the food while eating or in the mouth (as with straws.) (3 refs.)

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146 **SMITH, STEPHEN; & CHO, CHENG.** Cytomegalovirus pneumonia in sudden infant death syndrome. *Journal of the American Medical Association*, 233(8):861, 1975. (Letter)

Cytomegalovirus may be responsible for sudden death syndrome in some instances. After a week of mild intermittent wheezing and rhinorrhea, a 3½-month-old infant died suddenly. Autopsy findings showed no significant abnormality except pneumonia involving both lungs. Microscopic findings were compatible with interstitial pneumonitis. There was evidence of hyperplasia of the thymus, lymph nodes, and spleen. As in 2 similar reported cases of sudden infant death syndrome, cytomegalovirus was isolated from the lung tissues. (2 refs.)

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147 **FRAIKOR, ARLENE L.** Measles vaccine. *Journal of the American Medical Association*, 234(2):151, 1975. (Letter)

Several cases of measles have been reported in persons who supposedly received measles vaccine and booster immunizations, raising questions as to the particular viral strain and the effectiveness of the vaccine. Future epidemiological studies could be facilitated by having physicians record the name of the vaccine, the company producing it, the production date, and the lot or batch number on the patient's medical record. Similar information could be recorded for all prescribed medications.

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148 **JOHNSON, RICHARD T.** Hydrocephalus and viral infections. *Developmental Medicine and Child Neurology*, 17(6):807-816, 1975.

A review of animal studies on the viral pathogenesis of hydrocephalus has indicated that a variety of viruses show a selective affinity for ependymal cells, destroy ependymal cells without causing signs of clinical disease, and lead to the subsequent development of aqueductal stenosis and hydrocephalus. The histopathology, showing little inflammation or gliosis suggestive of infection, resembles cases of aqueductal stenosis in man thought to represent developmental anomalies. Recent clinical case reports and studies of spinal fluid in humans during mumps meningitis suggest that some cases of childhood hydrocephalus may have a similar pathogenesis. Whether mumps virus can cross the placenta and cause ependymal cell destruction in the fetus is unknown. Other viruses, in addition to developmental and genetic factors, may be more important in the pathogenesis of congenital aqueductal stenosis. (46 refs.)

149 **WENTZ, W. BUDD; REAGAN, JAMES W.; & HEGGIE, ALFRED D.** Cervical carcinogenesis with herpes simplex virus, type 2. *Journal of Obstetrics and Gynecology*, 46(2):117-121, 1975.

Clinical studies indicating a correlation between premalignant and malignant lesions of the uterine cervix and prior infection of the female reproductive tract by herpes simplex virus type 2 (HSV-2) suggested the need for a prospective study in the reproductive tract of the female mouse. The continuous vaginal application of formaldehyde-inactivated HSV-2 in 43 mice produced cytologic and histologic evidence of mucosal lesions of the uterine cervix similar to those associated with exposure to coal tar hydrocarbons. Frank invasive adrenocarcinoma of the cervix or uterine horn, with extension to adjacent pelvic organs, was observed in 39 percent of the mice. Noninvasive lesions were found in 76.8 percent of the Ss. (14 refs.)

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150 **ROSS, SYDNEY; RODRIGUEZ, WILLIAM; CONTRONI, GUIDO; KORENGOLD, GEORGE; WATSON, STANLEY; & KHAN, WAHEED.** Limulus lysate test for gram-negative bacterial meningitis. Bedside application. *Journal of the American Medical Association*, 233(13):1366-1369, 1975.

Although the limulus lysate assay on cerebrospinal fluid will not detect gram-positive bacterial meningitis, its validity for the rapid diagnosis of gram-negative bacterial meningitis was demonstrated in 355 infants and children. Positive limulus tests were obtained within one hour in 33 of 34 cases of Hemophilus influenzae meningitis. Positive limulus lysate tests were also shown in 4 other patients with gram-negative meningitis. Negative limulus assays were yielded in 13 patients with gram-positive bacterial meningitis, 48 cases of aseptic meningitis, and 236 children with no meningitis. Test validity was not altered by antibiotic therapy prior to hospitalization. A bedside modification of the limulus assay, performed by medical students and house officers, was almost as reliable as the laboratory test. (19 refs.)

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151 **NEWAYHID, B.; *BRINKMAN, C. R., III.; KATCHEN, B.; SYMCHOWICZ, S.; MARTINEK, H.; & ASSALI, N. S.** Maternal and fetal hemodynamic effects of diazoxide. *Journal of Obstetrics and Gynecology*, 46(2):197-203, 1975.

Intravenous injection of diazoxide into pregnant sheep produced maternal hypotension, increased cardiac output, decreased systemic vascular resistance, and little effect on uterine blood flow. Fetal circulation remained unaffected after injection into either the ewe or the fetus. The drug was rapidly cleared from the fetus. Moderate hyperglycemia was produced by the drug in both mother and fetus. In regard to transplacental transfer of diazoxide, data showed a definite gradient when the drug was injected into the mother; fetal blood was never in equilibrium with the maternal blood. When injected directly into the fetus, diazoxide was lost from the fetal circulation at a considerably faster rate than from the maternal circulation. (16 refs.)

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152 **NADERI, SHAHROKH.** Smallpox vaccination during pregnancy. *Journal of Obstetrics and Gynecology*, 46(2):223-226, 1975.

A group of 1,522 consecutive pregnant patients who had smallpox vaccinations during recent pregnancies (and at least one previous vaccination) did not have a significantly higher rate of stillbirths, premature births, or congenital abnormalities than 2,044 control patients who did not receive immunization during pregnancy. However, women vaccinated during the first trimester of pregnancy more often had children

with clubfoot than did women vaccinated later in pregnancy or nonvaccinated women. Unless there is an epidemic, vaccination should be postponed until the second or third trimester. The malignant course of smallpox in pregnancy suggests that smallpox vaccination should be performed regardless of gestational age if there is an immediate risk. (22 refs.)

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153 **SELL, FREDRICK J.; SMITH, MARION E.; LEIMAN, ARNOLD L.; & KELLY, JAMES M. III.** Myelination inhibiting and neuroelectric blocking factors in experimental allergic encephalomyelitis. *Science*, 187(4180):951-953, 1975.

In a study to investigate the relation of serum myelination inhibiting and neuroelectric blocking factors to the pathogenesis and clinical state of experimental allergic encephalomyelitis (EAE), sensitization of Lewis rats with whole central nervous system tissue or with purified myelin induced both EAE and a serum factor which inhibited myelin formation in vitro. Sensitization with the encephalitogenic factor, myelin basic protein, induced EAE, but not the myelination inhibition factor. Sensitization with cerebroside induced neither EAE nor myelination inhibition factor. The serums from control animals without EAE as well as from animals sensitized with all of the above antigens blocked evoked electrical responses in vitro. (14 refs.) (Author abstract modified)

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154 **PRICE, RICHARD W.; WALZ, M. ANTOINETTE; WOHLENBERG, CHARLES; & NOTKINS, ABNER LOUIS.** Latent infection of sensory ganglia with herpes simplex virus: efficacy of immunization. *Science*, 188(4191):938-940, 1975.

Female BALB/c and A/J mice were used to test the efficacy of active immunization in preventing latent infection of local sensory ganglia after inoculation of superficial epithelial surfaces with herpes simplex virus. The mice were immunized by intraperitoneal injection of live herpes simplex virus 1 or herpes simplex virus 2. Substantial protection was observed in animals immunized and challenged with herpes simplex virus type 1, but no protection was noted in animals immunized and challenged with herpes simplex virus type 2. Latent ganglionic infection can develop in immunized animals despite the presence of high titers of neutralizing antibody. (13 refs.) (Author abstract modified)

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155 **GOLTER, MARIANNE; & MICHAELSON, I. ARTHUR.** Growth, behavior, and brain catecholamines in lead-exposed neonatal rats: a reappraisal. *Science*, 187(4174):359-361, 1975.

Daily oral administration of lead to newborn rats has no adverse effect on their body growth. Lead-treated rats were more active than age-matched controls. Endogenous levels of brain dopamine were unchanged, whereas norepinephrine was increased, suggesting a possible relationship between lead exposure during earliest developmental periods, increased motor activity, and brain norepinephrine, and not brain dopamine as previously postulated. (17 refs.) (Author abstract)

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156 **HASPEL, MARTIN V.; & RAPP, FRED.** Measles virus: an unwanted variant causing hydrocephalus. *Science*, 187(4175):450-451, 1975.

Mutagenization of measles virus with proflavine produced a temperature-sensitive mutant capable of inducing hydrocephalus following intracranial inoculation of newborn hamsters. Hydrocephalus was not produced by the parental strain or by other measles virus mutants. Thus, mutants can be the causative agents of disease not associated with

the parental strain. The results dictate caution in the use and distribution of experimentally induced virus variants. (10 refs.) (Author abstract)

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157 **WALTERS, VERNON W.; MILLER, STEPHEN A.; *JACKSON, JOSEPH E.; & KENNY, MICHAEL T.** A field trial with a live measles-mumps-rubella vaccine. Successful use of a new combination of virus strains. *Clinical Pediatrics*, 14(10):928-933, 1975.

A double-blind placebo-controlled study involving 273 children showed that Lirutrin trivalent vaccine is well tolerated and highly effective. Lirutrin is a combination of Schwarz strain measles vaccine, Jeryl Lynn strain mumps vaccine, and Cendehill strain rubella vaccine. Susceptible vaccines, immune vaccines, and placebo recipients showed the same frequency of positive clinical findings. Measles, mumps, and rubella seroconversion rates, determined by antibody assay of paired serum samples, were excellent, ranging from 96 to 98 percent with all 3 lots combined. Observations indicate that there is neither viral nor immunologic interference among any of the components of the trivalent vaccine. (11 refs.)

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158 **DARBY, CHARLES F.; & HILL, OTIS.** Proteus morganii meningitis treated with trimethoprim-sulfamethoxazole (co-trimoxazole). *Clinical Pediatrics*, 14(7):669-672, 1975.

A case of Proteus morganii meningitis in a 2½-year-old boy responded promptly to a combination of trimethoprim and sulfamethoxazole (co-trimoxazole). The patient initially responded well to carbenicillin and kanamycin, but these antibiotics failed to control recurrent infection. A loading dose of co-trimoxazole was started based on 80mgm/kg of sulfamethoxazole followed by 40mgm/kg every 24 hours given in 2 divided doses. In vitro sensitivities by the disc method showed the organism to be extremely sensitive to co-trimoxazole. On the fifth day, a dermal sinus was dissected down to the spinal cord and removed along with a dural abscess. The patient had a fever for 48 hours after surgery, and co-trimoxazole was continued for 3 weeks. Recovery seems to be complete without any neurological sequelae. (10 refs.)

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159 **BHARUCHA, PILOCO E.; & NAIR, K. G.** Coxsackie B_1 endocarditis: a child with acute development of mitral and aortic incompetence. *Clinical Pediatrics*, 14(2):186-190.

The case is presented of a 10-year-old male with Coxsackie myocarditis, severe congestive failure, and mitral and rheumatic incompetence. The patient presented with general pain, slight fever, breathlessness on exertion, palpitations, and vague chest pains. The heart was enlarged on examination, and thoracic roentgenogram confirmed the existence of a large heart, as well as basal and midzone congestion in the lungs. The electrocardiogram showed left ventricular hypertrophy and ST- and T-wave changes as seen in myocarditis. Angiography confirmed the presence of mitral incompetence, and left ventricular contractility was poor. A diagnosis of infective myocarditis was made, and the viral origin was confirmed by the rising titer for Coxsackie B_1. Stubborn circulatory failure made rehabilitation difficult in this case, and rest and prolonged treatment did not completely alleviate the failure. Viral myocarditis may be more common than is suspected. In the Birch et al. series of 55 routinely autopsied hearts, 7 were found positive for Coxsackie viral antigen; 3 of these had mitral valvulitis. (12 refs.)

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160 **POLK, LEWIS D.** Is rubella still a childhood disease? *Clinical Pediatrics*, 14(6):541-542, 1975.

Although rubella is a common communicable disease of childhood, its incidence in adults is relatively high, and it occurs with greater frequency in adolescents and adults than does measles or chicken pox. Rubella is less contagious in children than is measles; however, 17-20 percent of adolescents and young adults are susceptible to the disease. Reports from a dozen colleges of rubella outbreaks during 1973, one of which involved 12 percent of the students, indicate a pattern of contagion limited to the college itself and not involving young children in the vicinity. This age-distribution pattern is considered due to the effective immunization programs in the United States, which up to the present have been focused on younger children. (6 refs.)

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161 **WILLIAMSON, ALICE P.** The varicella-zoster virus in the etiology of severe congenital defects: a survey of eleven reported instances. *Clinical Pediatrics*, 14(6):553-559, 1975.

Although it appears clear that the incidence of congenital defects after maternal varicella (chicken pox) is low, recent evidence indicates that the varicella-zoster (V-Z) virus may sometimes cause congenitally defective offspring. Defects, in 11 cases from the literature are presented, showing that 6 infants with a history of maternal V-Z infection had similar patterns of limb or trunk hypoplasia associated with typical zoster-like skin scars. The eye also was affected: 9 cases had cataract, microphthalmus, Horner's syndrome, anisocoria, optic atrophy, nystagmus, and chorioretinitis. Brain damage occurred in 7 cases, and failure to thrive and increased susceptibility to infection were common. Some of the defects may occur secondarily to destruction or degeneration of nerves supplying the area. There is no proof that all the cases are examples of V-Z induced anomalies, but it is reasonably certain that the virus is related etiologically to some cases of congenital defects. Clinicians should consider this virus, along with other teratogenic agents, as a possible cause of congenital defects, and should report findings in an abortus or newborn which might be related to intrauterine infection. (18 refs.)

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162 **POLK, LEWIS D.** Less measles—really down this time? *Clinical Pediatrics*, 14(4):321-322, 1975.

The decrease in reported cases of measles in the United States each year since 1971, after 3 consecutive years of increases, has led to the cautious hope that the disease may be eliminated in the next few years. The initial trend toward a decrease in reported cases of measles, which followed the federal program of funding for mass measles immunization and surveillance, was reversed in 1969, 1970, and early 1971, probably because not enough children were vaccinated. A reinstitution in 1971 of direct federal funding for measles vaccine was reflected in the decline in the number of reported measles cases in 1972 and 1973. Although data from a study of the reliability of these figures indicate that only about 10 percent of the actual number of measles cases are being reported, extrapolation of the data suggests that the yearly trends and comparisons are reasonably valid, that the vaccine is 90 percent or more effective, and that it is reasonable to hope that continued improvement in the measles immunization status of children in the United States will lead eventually to the elimination of the disease. (6 refs.)

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163 **SHARIF, H.; HEKMAT, K.; & AMIRHAKIMI, G. H.** Fever and hepatosplenomegaly of three months' duration. *Clinical Pediatrics*, 14(4):417, 1975.

The case is presented of a 4-year-old female from Southern Iran admitted to the hospital with a fever of 3 months' duration, dry cough, and episodes of expistaxis and nonbloody diarrhea. She was of poor socioeconomic background and

had poor nutrition and a history of slightly delayed developmental milestones. The patient, who was treated with penicillin and streptomycin and kept on intravenous fluids, died after 24 hours in the hospital. Autopsy revealed massive involvement of spleen, liver, kidneys, bone marrow, mesenteric lymph nodes, bowel mucosa, and lungs with Leishman bodies. In areas where Kala azar is endemic, the presence of hepatosplenomegaly and fever should suggest the possibility of this disorder; it may be treated with pentavalent antimonials or amphotericin B. (1 ref.)

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164 **RAHBAR, FARIBORZ.** Observations on methadone withdrawal in 16 neonates. *Clinical Pediatrics*, 14(4):369-371, 1975.

The withdrawal symptoms in 14 infants born to mothers who were actively addicted to heroin were compared to those of 16 born to mothers who were on methadone maintenance programs. Nine of the 30 newborns were of low birth weight, although the average birth weight of the methadone infants was 300gm higher than that of the heroin infants. The onset of withdrawal ranged from 1 to 120 hours in the infants, although 4 in each group were asymptomatic. The incidence of mild symptoms (tremors, sustained ankle clonus, and irritability) was much higher in the heroin (42 percent) than in the methadone (6 percent) group. However, moderate and severe symptoms (vomiting, diarrhea, dehydration, convulsions, and cardiorespiratory problems) were much more frequent in the methadone infants (50 and 14 percent) compared with the heroin group (18 and 7 percent). Treatment averaged 27.7 days for the former group and 27.1 days for the latter. It proved much more difficult to treat the methadone group, and much higher doses of medications (paregoric and phenobarbital) were needed than with the heroin group. In both, it was difficult to wean the infants from the medication. (11 refs.)

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165 **ALOJIPAN, LETICIA C.; & ANDREWS, BILLY F.** Neonatal sepsis: a survey of eight years' experience at the Louisville General Hospital. *Clinical Pediatrics*, 14(2):181-185, 1975.

The results of a retrospective study of 50 infants proven to have neonatal septicemia are presented. The most common clinical sign of sepsis was jaundice (48 percent), although poor feeding, gastrointestinal symptoms, respiratory problems, lethargy, fever, seizures, and hepatomegaly occurred in 8-40 percent of the cases. In the 25 infants with gram-negative septicemia, *E. coli* ranked highest among the bacteriologic organisms isolated. The most common gram-positive organism found was hemolytic *Streptococcus* non-Group A. Although the clinical manifestations were more frequent in gram-negative septicemia, it was not possible to differentiate between gram-negative and gram-positive sepsis on the basis of clinical signs alone. Positive laboratory evidence for infection and a positive C-reactive protein reaction are helpful, but their absence in the presence of clinical signs does not rule out the diagnosis. Because intensive and broad antibiotic therapy is standard with a presumptive diagnosis of septicemia, treatment was successful in 43 of the 50 cases. Of the 7 who died, 6 were premature and 6 harbored gram-negative organisms. Factors considered to predispose to neonatal sepsis are prolonged ruptured membranes (24 hours), asphyxia (Apgar less than 5), purulent amniotic fluid and/or maternal fever, maternal infection, difficult delivery, and meconium-stained amniotic fluid. Early, vigorous antibiotic treatment, supportive therapy, and a high index of suspicion are essential to reduce the morbidity and mortality of neonatal sepsis. (14 refs.)

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166 **JOHNSEN, STANLEY D.** Some important pitfalls in the diagnosis and treatment of bacterial meningitis in children. *Clinical Pediatrics*, 14(2):191-200, 1975.

Despite the advent of antibiotic therapy and important advances in the management of *H. Influenzae* meningitis, it still remains a major emergency in childhood, causing death or serious disability in a significant percentage of patients.

Further reduction in morbidity and mortality depends on a higher degree of meticulous management. Errors and problems of the physician in caring for a child with bacterial meningitis are detailed: misdiagnosis (common signs and symptoms of the disease are tabulated), inappropriate handling of the cerebrospinal fluid, inadequate evaluation of the response to therapy, inappropriate drug therapy (300-400mg/kg/day of ampicillin given intravenously every 4-6 hours in a 30-minute infusion for at least 10 days is recommended, inadequate evaluation and treatment of seizures (intravenous diazepam as the initial anticonvulsant, combined with 6mg/kg intramuscular phenobarbital is suggested), inadequate control of increased intracranial pressure, inappropriate assessment of a persistent fever, inappropriate fluid therapy, inadequate consideration of the possibility of hydrocephalus, inappropriate treatment of subdural effusions, inadequate consideration of the possibility of underlying defects. Care of a child with bacterial meningitis should not cease with hospital discharge, because at least 18 percent of those recovered have definable neurologic sequelae, particularly MR and organic behavior problems.

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167 **HAMBLING, M. H.** Effect of a vaccination programme on the distribution of rubella antibodies in women of childbearing age. *Lancet*, 1(7916):1130-1133, 1975.

Routine rubella hemagglutination-inhibiting tests in 39,005 women of childbearing age in Leeds, England, were used to demonstrate past infection with rubella and to indicate degree of immunity. Serum samples showed that 9.5 percent of the women were seronegative, and an additional 9.2 percent had low antibody titres (1/8 or 1/16). The frequency of seronegative women in the 15 to 19 year age group has dropped by 5.7 percent since routine rubella vaccination of schoolgirls began in 1970. Serological confirmation of clinical rubella was obtained in 140 women, including 58 pregnant Ss. Thirty of the pregnancies at risk were terminated, 26 proceeded to term, and 2 resulted in spontaneous abortions. One neonate had congenital rubella. Results should provide a comparison for data obtained in the next few years. (5 refs.)

168 **LEHNER, T.; WILTON, J. M. A.; & SHILLTOE, E. J.** Immunological basis for latency, recurrences, and putative oncogenicity of herpes simplex virus. *Lancet*, 2(7924):60-62, 1975.

The development of latency and recurrent infection after primary herpes simpled virus (HSV) infection can be interpreted in terms of cell-mediated and antibody responses to virus specific antigens and Fc receptors on the surface of the infected cells. Primary infection will induce immune responses to the virus, and antibody and cell-dependent cytotoxic mechanisms will kill most of the virus and virus-infected cells which are accessible to killer cells. HSV will be sequestrated to the nerves and will migrate centripetally along the axons to the trigeminal or sensory ganglia. Latency in the trigeminal ganglion may be mediated by IgG antibodies binding to both HSV antigens and FC receptors. Derepression of the viral genome may be induced by factors which weaken the binding of antibodies to the antigen and Fc receptor; the virus will replicate and migrate centrifugally along the axon, to be shed at the nerve endings. In the presence of some defect in T lymphocytes, acting at the neuroepithelial junction, a recurrent herpetic lesion will be precipitated. There is some evidence that HSV may be associated with squamous-cell carcinoma, and it is postulated that the enhanced cell-mediated and antibody responses to HSV may destroy cells containing the viral genome but allow the emergence of an oncogenic genome. (50 refs.) (Author abstract modified)

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169 **WU, BRIAN C.; DOWLING, JOHN N.; ARMSTRONG, JOHN A.; & HO, MONTO.** Enhancement of mouse cytomegalovirus infection during host-versus-graft reaction. *Science*, 190(4209):56-58, 1975.

To establish the course of murine cytomegalovirus (MCMV) infections, C_3H/He mice chronically infected with MCMV were given skin allografts from histoincompatible BALB/c donors. A significant increase in cytomegalovirus titers occurred within 3 days after placement of the graft in the

spleens and kidneys of the allograft recipients as compared with control animals. No significant changes in virus titers were detected in the salivary gland, lung, liver, or blood of allograft recipients. These results indicate that the host-versus-graft reaction alone can enhance murine cytomegalovirus in a chronically infected host and may help explain the high incidence of cytomegalovirus infection seen after renal and other allograft transplantation in man. (18 refs.) (Author abstract modified)

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170 **MARX, JEAN L.** Cytomegalovirus: a major cause of birth defects. *Science*, 190(4220):1184-1186, 1975.

Because cytomegalovirus (CMV) is the most common viral cause of MR, and CMV infections pose a threat to immunosuppressed individuals such as cancer patients and transplant recipients, investigators would like to develop effective methods for preventing them. Research to develop a vaccine has had some success, but there is concern about administering intact CMV particles with their DNA to humans, since there is evidence that some of the herpesviruses may cause cancer. Pregnancy, organ transplantation, transfusions, and malignancies have been associated with CMV reactivation. There are also doubts whether vaccination can completely protect against intrauterine transmission of CMV, if natural infection does not. Efforts at abrogating existing infections may be more successful. Huang has shown that when CMV infects human cells it induces the synthesis of a new DNA polymerase which differs from the normal cellular DNA polymerases of uninfected cells. Since phosphonacetic acid specifically inhibits the activity of the virus-induced enzyme without significantly inhibiting that of the cellular DNA polymerase, this drug seems a promising one for treating CMV infections.

171 **JOHANNES, RICHARD S.; & SEVER, JOHN L.** Subacute sclerosing panencephalitis. *Annual Review of Medicine: Selected Topics in the Clinical Sciences*, 26:589-601, 1975.

A survey of the literature on subacute sclerosing panencephalitis (SSPE) is presented, including discussion of its clinical signs and symptoms, epidemiology, diagnosis, pathology, etiology, and treatment. Four stages in the clinical course of SSPE are described, with derangement of autonomic function and complications of care usually leading to the patient's death. More than 50 percent of thh patients have a history of clinical measles at less than 2 years of age, suggesting that immaturity of the immune system may be a contributing factor. Evidence implicating measles virus as the etiologic agent has been strengthened by demonstration of recoverable measles virus from the brain tissue of SSPE patients in whom routine cerebrospinal fluid (CSF) examination has also disclosed an elevated gamma globulin level and paretic colloidal gold curve. Diagnosis of SSPE may be accomplished with relative ease and great specificity by EEG examination accompanied by determination of serum and CSF measles titers by complement fixation and hemagglutination inhibition. Although it has become clear that SSPE is a slow virus infection of the brain caused by measles virus, it is not clear what events allow the rare patient who is exposed to wild measles to develop a progressive infection within the central nervous system. While the nature of the host immune response in SSPE is a continuing source of confusion, the use of animal models in research may elucidate the nature and mechanism of a measles-specific inhibitory substance which appears able to block expression of cellular immunity in SSPE. (80 refs.)

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172 **OLNESS, KAREN; COHEN, PAUL; & KOCH, BARBARA.** Neonatal syphilis with intestinal complications. *Clinical Proceedings, Children's Hospital National Medical Center*, 31(2):35-39, 1975.

A case of neonatal syphilis is detailed to emphasize that the diagnosis of congenital syphilis may be overlooked when the clinical course of the disorder differs from the textbook description. The patient was born of a 16-year-old mother after a 36-week gestation. The mother registered negative on the Venereal Disease Research

Laboratories (VDRL) test in the second trimester but was not tested again until after delivery. The infant had generalized edema, jaundice, hepatomegaly, hyperbilirubinemia, anemia, thrombocytopenia, hypocalcemia, and prolonged partial thromboplastin time. Treatment with ampicillin and gentamicin was instituted. After 3 days of treatment with both drugs, a positive VDRL was reported in mother and infant. Aqueous penicillin IV was instituted on Days 26-36 because of poor response to the initial antibiotic therapy. Vomiting and abdominal distention developed on the tenth day, and the possibility was noted of abdominal complications from congenital syphilis. After surgery and a 10-day course of aqueous penicillin G, the patient improved and was discharged at 50 days of age. Results suggest that aqueous penicillin may be superior to ampicillin in the treatment of syphilis and that, in an area with a high incidence of syphilis, a VDRL should be taken during each trimester of pregnancy to avoid problems similar to those in the present case. (8 refs.)

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173 **KRETH, H. W.; TER MEULEN, V.; & ECKERT, G.** HL-A and subacute sclerosing panencephalitis. *Lancet*, 2(7931):415-416, 1975. (Letter)

Evidence that there is no association between HL-A antigen W-29 and subacute sclerosing panencephalitis (SSPE) is presented. Data were collected about the HL-A phenotypes in 24 patients (10 girls, 14 boys) with SSPE. Peripheral lymphocytes were typed for 11 HL-A specifications of the first series and 17 antigens of the second series by a standard microcytotoxicity list. With 2 exceptions (antigens TY and SL) all antigens were defined by 3 to 5 different antisera. No significant differences between HL-A frequencies in SSPE patients and controls were found. In contrast to multiple sclerosis, there was no significant increase of the HL-A and HL-7; thus SSPE and multiple sclerosis are probably 2 different disease entities. A genetic predisposition for an altered immune response against measles virus may exist in patients with SSPE, but no evidence of immunological deficiency was found. Although findings do not rule out the existence of such a genetic trait, they do suggest that there is no close linkage to any histocompatibility gene. (6 refs.)

174 **TURNER, GILLIAN; & COLLINS, EDITH.** Fetal effects of regular salicylate ingestion in pregnancy. *Lancet*, 2(7930):338-339, 1975.

A study was initiated to answer the question whether salicylates are teratogenic and whether a raised level of blood salicylate is of any clinical significance in the neonatal period. The babies of 144 mothers who took salicylates regularly in pregnancy were examined and compared with a group of controls. Babies of mothers taking salicylates had significantly reduced birth weight, and there was an increased incidence of fetal death. The frequency of major anomalies was not significantly raised. There were more anomalies in the group of women who took salicylates intermittently rather than constantly, suggesting that if there is any teratogenic effect it may be related more to fluctuating levels of salicylate than to a constantly elevated level. (8 refs.)

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175 **TANG, THOMAS T.; SEDMAK, GERALD V.; SIEGESMUND, KENNETH A.; & MCCREADIE, SAMUEL R.** Chronic myopathy associated with coxsackievirus Type A9. *New England Journal of Medicine*, 292(12):608-611, 1975.

In a case of chronic myopathy, picornavirus-like crystals were demonstrated by electron microscopy, and the presence of coxsackievirus Type A9 was verified by viral isolation. An 11-year-old girl who had had muscular and physical retardation since early infancy died of pneumonia due to atropy of diaphragmatic and intercostal muscles. Subsequent inoculation of primary human amnion cells with a sonic treated suspension of the patient's diaphragmatic muscle tissue induced an enterovirus-like cytopathic effect. The isolate was identified with use of Lim-Benyesh-Melnick enterovirus typing serum pools. The isolation of coxsackievirus Type A9 from the muscle tissue of this patient lends support to the belief that these organized particles are indeed the icosahedral virions. (11 refs.)

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176 **HANSON, PEGGY A.; & URIZAR, RODRIGO E.** Reye's syndrome – virus or artifact in muscle? *New England Journal of Medicine*, 293(10):505-506, 1975. (Letter)

Virus-like particles were found in a postmortem examination of skeletal muscle in a patient suffering from Reye's syndrome, although muscle biopsy performed on the same patient 1 hour before death failed to reveal the presence of similar structures. The autopsy material obtained within 2 hours of death showed abundant crystalline inclusions, generally in hexagonal array and measuring 20 to 30nm in diameter. They were widely distributed in the intermyofibrillar interstices and were seen in virtually all samples examined. Whether the crystalline structures represent virus or result from the precipitation of some unidentified material is uncertain. The prominence of this material and its distribution in abundance between the myofibrils may support the latter postulate. The possibility of rapid postmortem proliferation of virus, although unlikely, is an alternative suggested by isolation of coxsackie virus from the material described by Tang et al. Routine examination of postmortem skeletal muscle by electron microscopy in a wide variety of conditions will be necessary to evaluate the changes, but should in no way discourage the investigation of the viral myopathy hypothesis for Reye's syndrome. (4 refs.)

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177 **REED, C. D.; & TOLLEY, J. A.** Lead in drinking-water and mental retardation. *Lancet*, 1(7917):1186, 1975. (Letter)

Comments are offered in connection with correspondence about drinking water, lead, and MR. Where the total lead in drinking water has been measured, values in excess of 100,000μg/liter have been found. Personal research indicates that all major towns in the United Kingdom have water supplies which are more plumbisolvent than the World Health Organization's recommended limit. It is suggested that it is good practice to run water to waste every morning before using.

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178 **EVANS, T. J.; McCOLLUM, J. P. K.; & VALDIMARSSON, H.** Congenital cytomegalovirus infection after maternal renal transplantation. *Lancet*, 1(7921):1359-1360, 1975.

A case of proven congenital cytomegalovirus (CMV) infection in the infant of a woman receiving immunosuppressant therapy after renal transplantation and throughout pregnancy is reported. It is felt surprising that this complication has not been noted previously, since CMV infection is a common complication of renal transplantation, either from activation of latent virus triggered by immunosuppressive therapy or from exposure after the operation. Since the complement-fixation titers at the beginning and end of the pregnancy were not significantly different, reactivation rather than primary infection would be presumed. Hepatitis and transient purpura were the clinical features of the infant's illness. During the first year of the child's life depression of humoral and cellular immunity was demonstrated. During that time the child experenced no untoward infections and developed normally. However, an increased incidence of neoplasia with impairment of immunological function, and other reported potential fetal hazards, suggest that there should be a cautious attitude towards pregnancy in women taking immunosuppressive drugs and after renal transplantation. (10 refs.)

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179 **KEATING, JAMES P.; KARL, IRENE E.; DeVIVO, DARRYL C.; & HAYMOND, MOREY W.** Hypophosphataemia in Reye's syndrome. *Lancet*, 2(7923):39-40, 1975. (Letter)

In patients with Reye's syndrome mean serum-inorganic phosphorus was significantly less than that of age-matched controls; it decreased even further after glucose infusion. In half of the 8 children studied, levels below 1.0mg/100ml were recorded. Since the mechanism of the generalized cellular dysfunction in Reye's syndrome remains a mystery, these data suggested the possibility that the hypophosphatemia connected with the syndrome might, as in other clinical settings, be associated with impaired release of oxygen from

hemoglobin, rendering tissues hypoxic. Actual measurement of the hemoglobin dissociation curve was not available, and the fact that erythrocyte organic phosphate levels were normal is an argument against the theory. A direct effect of hypophosphatemia on cellular respiration was, however, not excluded. Factors which might contribute to the low serum-inorganic-phosphorus include hyperventilation, glucose infusion in starved state, and losses during the antecedent infectious illness. (4 refs.)

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180 Can herpes simplex encephalitis be treated? *Lancet*, 1(7920):1324-1325, 1975. (Editorial)

The diagnosis and treatment of encephalitis caused by herpesvirus hominis, which has a mortality of about 70 percent, is discussed. At present there are 3 types of investigative procedures which are likely to be applied to patients suspected of having herpetic encephalitis: radiological methods, which might confirm the presence of localized tissue damage in the temporal lobe; electroencephalography, the value of which remains in dispute; and examination of cerebrospinal fluid, which is in some cases no more than suggestive. The more complex diagnostic techniques demand neurosurgical and virological services. It is important to confirm the diagnosis of herpes simplex encephalitis because the therapy requires potentially toxic compounds. The specific regimens proposed for this disease involve analogues of the pyrimidine bases of deoxyribonucleic acid, usually either 5-iodo-2′-deoxyuridine (idoxuridine, IDU) or autosine arabinoside (cytarabine, Ara-C), both of which are cytotoxic. There have been many claims of success and failure with IDU; in an investigation reported from the U.S., the agent was abandoned because of therapeutic inactivity and unacceptable myelosuppression. Similar controlled trials with Ara-C, which seems less toxic, are much needed. The proposed U.K. trial of Ara-C should eventually resolve problems of diagnosis and provide a mechanism by which new drugs can be assessed in this uncommon disease.

181 **MARSHALL, W. C.; TROMPETER, R. S.; & RISDON, R. A.** Chronic rashes in congenital rubella: isolation of virus from skin. *Lancet*, 1(7920):1349, 1975. (Letter)

The first instance of isolation of virus from the skin of an infant with congenital rubella is reported. The mother had noticed that the infant's skin had had a blotchy appearance from 2-3 months of age. A severe hearing loss was present, but no other abnormalities were found. There was a history of exposure to suspected rubella in the second month of pregnancy, but the mother did not have a febrile or exanthematous illness after this exposure. At 10 months of age, rubella H. I. antibody was present in the child's serum in a titer of 1/512. Rubella virus was isolated from the urine, nasopharyngeal secretions, peripheral blood lymphocytes, and cerebrospinal fluid. A biopsy of the rash was taken from the outer aspect of the left leg, and from this skin specimen rubella virus was also isolated. It is not possible to determine whether the virus was present in skin fibroblasts, or was derived from the chronic inflammatory cells in the biopsy specimen. It is also not known whether the rash is caused by the virus itself or is due to a host response to the infection, mediated perhaps by an immunopathological process. (10 refs.)

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182 **SUTTON, R. N. P.; & PULLEN, H. J. M.** Iatrogenic rubella infection. *Lancet*, 1(7921):1381, 1975. (Letter)

Obstetric registrars (whether male or female) and midwives are not ex officio immune from rubella and, if they acquire infection, become potent sources of danger for the 20 percent or so of women in the first trimester of pregnancy who are at risk from this virus. A number of instances have been recently reported where a member of an obstetric unit developed rubella while working in close daily contact with pregnant women, raising the disturbing possibility of in utero infection and consequent congenital abnormality. It is urged that no member of an obstetric unit should be at risk of contracting rubella. All staff, before appointment, should be tested for antibodies to rubella virus; if antibodies are absent new staff members should be immunized. (1 ref.)

183 **HAMILTON, E. I.** Blood lead in children. *Lancet*, 1(7914):1038-1039, 1975. (Letter)

Data on concentrations of lead in blood of nonoccupationally exposed adults in the United Kingdom (U.K.) reveal a mean blood-lead level of 24μg/100ml for 151 samples of blood collected randomly (excluding samples from large cities and industrial settings), as compared with a value of 26μg/100ml from a master mix of U.K. blood. A table of lead concentrations in blood reveals that a significant number of children and adults in the U.K. population may be exposed to the hazard of detrimental lead levels. Since the effects of lead intoxication in adults are insidious, lack of obvious symptoms of lead intoxication in adults with blood lead levels on the order of 40μg/100ml blood cannot be interpreted to mean that deleterious changes have not taken place.

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MEDICAL ASPECTS — Etiologic Groupings
Hemolytic disorders

184 **BURCHELL, B.; & DUTTON, G. J.** Delayed induction by phenobarbital of UDP-glucuronyltransferase activity towards bilirubin in fetal liver. *Biology of the Neonate*, 26:122-128, 1975.

To determine whether UDP-glucuronyltransferase (GT) can be induced by phenobarbital before birth, thus reducing the toxicity of other drugs and bilirubin, levels of GT towards bilirubin in mouse fetal livers containing concentrations of phenobarbital similar to those in maternal liver were investigated. Treatment of pregnant mice with phenobarbital gave rise to drug levels in the maternal and fetal liver which were measurable by gas-liquid chromatography. The phenobarbital concentration detected in fetal liver at 17 days (15μg/g liver) was found to be similar to that in the maternal liver (18μg/g liver). GT activity in livers from pregnant and nursing mice was increased some 2-fold to an approximately constant level after 7 days' treatment with phenobarbital. However, in 15- to 18-day-old fetal liver the presence of this concentration of phenobarbital did not affect the normal development of GT. Phenobarbital induced GT activity towards bilirubin only in late fetal liver (1-2 days before birth) and thereafter, as expected, in the neonatal liver. This pattern persisted through changes in assay conditions. Digitoxin at a concentration which activated the enzyme from maternal and neonatal livers did not activate the fetal enzyme until day 19, with or without phenobarbital pretreatment. At this late stage, therefore, the fetal enzyme is increased by phenobarbital pretreatment and activated by 0.2 percent digitoxin, as is the adult enzyme. (17 refs.)

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185 **WOOD, GARY P.** Urinary estrogen assays and maternal hyperbilirubinemia. *Journal of Obstetrics and Gynecology*, 45(2):133-135, 1975.

Colorimetric assays resulted in erroneously low urinary total estrogen levels in 3 pregnant patients who subsequently delivered apparently healthy infants. Two patients had severe hemolytic anemia and hyperbilirubinemia, and the third had marked hyperbilirubinemia secondary to infectious hepatitis. Inaccurate urinary estrogen levels may be due to the interference of the large amounts of urobilin present in the urine of these patients. Although urinary estrogen determinations have been valuable in managing pregnant patients with various metabolic disorders which may adversely affect the fetus, patients with hemolytic anemias cannot be accurately evaluated for urinary estrogen excretion with colorimetric assays. (8 refs.)

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186 **LEE, KWANG-SUN; *GARTNER, LAWRENCE M.; & ZARAFU, ILANA.** Fluorescent dye method for determination of the bilirubin-binding capacity of serum albumin. *Journal of Pediatrics*, 86(2):280-285, 1975.

A microfluorometric technique of determining albumin-binding capacity for bilirubin is simple, extremely rapid, and requires only 3μl of sera. A fluorescent dye, Direct Yellow 7 (DY7), is used which seems to behave in many ways similar to bilirubin. DY7 shares bilirubin-binding sites on albumin with as much as 2 mols of bilirubin with different affinities to the first and second sites. Lowered pH, which has been implicated in newborn infants as a risk factor in the development of kernicterus, reduces albumin-binding capacity of icteric sera. The binding capacity of adult human sera is greater than that of human cord sera or purified human serum albumin compared on an albumin molar basis. Long-term studies of high risk infants will determine the value of the method for predicting neurologic outcome. (17 refs.)

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187 **NATHENSON, GERALD; COHEN, MICHAEL I.; & MCNAMARA, HELEN.** The effect of Na benzoate on serum bilirubin of the Gunn rat. *Journal of Pediatrics*, 86(5):799-803, 1975.

Because sodium benzoate (Na benzoate), contained in injectable diazepam, can cause the dissociation of bilirubin from albumin-binding sites, its effect on serum bilirubin concentrations in the Gunn rat was studied. Administration of Na benzoate to suckling and grown rats at doses comparable to quantities contained in injectable diazepam (7 and 35mg/kg) failed to alter serum bilirubin concentrations significantly. Repeated doses of 7mg/kg in the adult rat also had no effect. Depressed serum bilirubin concentrations resulted from a single dose of 100 or 200mg/kg of Na benzoate and repeated doses of 35mg/kg. However, the higher concentrations of the Na benzoate greatly exceed amounts contained in dosages of diazepam recommended for clinical use in newborn infants. Results suggest that injectable diazepam is a safe agent when used within the dosage range recommended in clinical neonatal medicine. A greater margin of safety may in fact exist because of the lesser affinity of rat albumin for bilirubin than of human albumin. (16 refs.)

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188 **PEARSON, HOWARD A.; O'BRIEN, RICHARD T.; & ASPNES, GREGG T.** Thalassemia in Greek Americans. *Journal of Pediatrics*, 86(6):917-918, 1975.

From 1972 through 1974, nearly 600 Greek-Americans living in Connecticut were studied in a comprehensive voluntary thalassemia testing program directed primarily at teenagers and young adults. Of 591 individuals tested, 94 (15.7 percent) had either α (3.2 percent) or β (12.5 percent) thalassemia trait, rates similar to those described in Greece. Two individuals were found to have sickle cell trait. A church-centered community social life, strong ethnic and cultural bonds, and social pressure to marry within the community may serve to perpetuate thalassemia in the future among Greek-Americans. (9 refs.)

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189 **SEEM, E.; & *WILLE, L.** Salicylate saturation index in neonatal jaundice. *Biology of the Neonate*, 26:67-75, 1975.

Thirty samples from premature and newborn infants with nonhemolytic hyperbilirubinemia were analyzed to prove the accuracy of determination of albumin binding capacity for bilirubin. The salicylate method of Odell was used to determine the saturation index of albumin. This method permits the indirect determination of the relative concentration of unbound bilirubin in serum by measurement of saturation of the carrier albumin for bilirubin. The concentration is determined by a change in optical density at 460nm of the diluted serum after addition of a standardized amount of a salicylate. The latter competes with bilirubin for albumin under stoichiometric conditions. The values of the saturation index correspond to free binding sites. Salicylate saturation index was

compared with total serum bilirubin/albumin concentration quotient, and statistical analysis of data revealed no direct correlation. Results indicated that the salicylate saturation index is unreliable and cannot be used as an additional parameter to predict the exact moment for blood exchange transfusion to prevent kernicterus. (36 refs.)

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190 **OWEN, GARRY D.** Use of Rh immune globulins. *New England Journal of Medicine*, 15(293):777, 1975. (Letter)

Reference is made to a review of the prevention of Rh hemolytic disease, by Freda et al., in which the type of treatment which the pregnant Rh-negative patient receives is based on the husband's Rh type. This philosophy of screening based on the premise that husband and father are one and the same poses a potential serious risk to the fetus. It would be much wiser to recheck each Rh-negative mother later in pregnancy for the emergence of antibodies and not to bother checking the Rh type of the husband. Using this procedure, the physician will not assume a false sense of security and neglect an erythroblastotic fetus.

191 **KNOX, ERIC; & HARRIS, HOWARD.** Use of Rh immune globulins. *New England Journal of Medicine*, 15(293):777, 1975. (Letter)

The statement by Freda et al. that the major responsibility for administration of Rh immune globulin should be solely that of the physician is questioned. Studies have indicated a tremendous variation in the use of Rh immune globulin from hospital to hospital, depending on many factors, including physician education. To minimize all factors that contribute to the demonstrated variations in Rh immune globulin utilization, a fail-safe system regulated by the state health department, as it is in Connecticut, and independent of initiation by the physician could be instituted. The efficacy of such a system is demonstrated by the fact that 99.1 percent of eligible Rh-negative mothers in Connecticut received Rh immune globulin during the first 6 months of 1974. Assuming that all eligible females receive Rh immune globulin at the time of delivery, there is still the problem of the 2 to 4 percent of Rh-negative gravidas who manifest Rh isoimmunization during the first pregnancy. Several reports have suggested that Rh-negative infants born of Rh-positive mothers can have anti-D antibody present in their circulation. Screening of Rh-negative female offspring of Rh-positive mothers for the presence of anti-D antibody is thus suggested. The possibility of administering Rh immune globulin to all female infants at risk may be the last step necessary to eradicate Rh hemolytic disease completely. (7 refs.)

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192 **LIN-FU, JANE S.** Use of immune globulins. *New England Journal of Medicine*, 15(293):777-778, 1975. (Letter)

The statement by Freda et al. (1975) that the conquest of the Rh disease is now a reality is questioned. Currently, only 6 states monitor utilization rates of Rh immune globulin, and administration to postpartum women is far from optimum. Perhaps even more disturbing is the poor utilization rate among women who undergo abortion. A 1970 paper by Freda et al. indicated that risk of Rh isoimmunization after abortion is definitely appreciable at 2 months' gestation (2 percent) and very substantial at 3 or more months (9 percent). Despite these facts, a 1972 report indicated that 2 large abortion clinics administered Rh immune globulin to fewer than 1/3 of the women at risk. Considering the estimate that 1 to 1.5 million abortions (spontaneous and induced) occur each year in the U.S., it is essential to realize that failure to administer Rh immune globulins to all women at risk means perpetuation of a disease that no longer has reason to exist. (7 refs.)

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193 **GRAFTON, WARREN D.; POLIN, RICHARD A.; & BEHRMAN, RICHARD E.** Bilirubin fractionation as an emergency laboratory test. *Journal of the American Medical Association*, 233(8):911-912, 1975.

In response to a query, it is noted that an elevated serum conjugated bilirubin level occurs in enough clinical situations to warrant the availability of this test on a 24-hour basis. Both the fetus and neonate possess the ability to conjugate bilirubin. An increased direct-reacting fraction may be demonstrated in neonates with sepsis, pyelonephritis, erythroblastosis, and hepatic diseases, and in neonates receiving intrauterine transfusions. For these infants, bile in the urine is a sensitive and useful indicator of elevated level of serum conjugated bilirubin. The immediate determination of the total and direct bilirubin level is extremely important for the infant at risk for bilirubin encephalopathy. Lipid soluble bilirubin fraction (unconjugated bilirubin) is responsible for the central nervous system damage in kernicteric infants. Therapeutic intervention can lower the serum conjugated bilirubin level.

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194 **BEUTLER, ERNEST.** Genetic disorders of human red blood cells. *Journal of the American Medical Association*, 233(11):1184-1188, 1975.

Genetic and acquired variability in red blood cells (RBC) may be associated with various clinical states. Genetic variations in hemoglobin are found in the sickling disorders, the unstable hemoglobinopathies, hemoglobinopathies associated with polycythemia or with methemoglobinemia, and the alpha- and beta-thalasemias. Glucose-6-phosphate dehydrogenase deficiency is the most common enzymatic abnormality of RBC, but other defective enzymes may be associated with hemolytic anemia. Galactosemia and Lesch-Nyhan syndrome are among the nonhemolytic diseases which are related to RBC enzyme deficiencies. Study of RBC is also important in assessing dietary deficiencies associated with many clinical states. (21 refs.)

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195 **SHENKER, LEWIS; POST, ROBERT C.; & SEILER, JEROME S.** Routine electronic monitoring of fetal heart rate and uterine activity during labor. *Journal of Obstetrics and Gynecology*, 46(2):185-189, 1975.

A program of routine electronic monitoring during labor has resulted in a marked reduction of fetal mortality. Over 2,411 labor patients at Booth Memorial Medical Center in New York have been routinely monitored, including 8 percent of the patients in a recent 6 month period. Intrapartum stillbirths have been dramatically reduced from 1.2/1,000 livebirths to 0.5/1,000 livebirths. For fetuses over 1,000 grams, perinatal mortality has fallen to 8.8/1,000 deliveries. Apgar scores below 6 at 5 minutes have fallen from a rate of 24/1,000 to 14/1,000. The number of cesarean sections for fetal distress did not increase as a result of monitoring in spite of a primary cesarean section rate increase in recent years which seems unrelated to fetal monitoring. Evidence indicates that all patients in labor should be monitored continuously by currently available techniques. (8 refs.)

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196 **SCOTT, JAMES R.; & GUY, L. RUTH.** Is Rh imminoglobulin indicated in patients having puerperal sterilization? *Journal of Obstetrics and Gynecology*, 46(2):178-180, 1975.

Survey data from 118 hospitals suggest that obstetric units should reexamine the recommendation for routine administration of Rh immunoglobulin to all Rh-negative women undergoing puerperal sterilization. Only 7 of 100 Rh-negative women are sensitized by their last pregnancy, and there is less than a 2 percent chance that any of those 7 women will ever receive Rh-positive blood. Even in emergency situations, Rh-positive blood is rarely given to Rh-negative women. Rh-positive blood is most likely to be administered to Rh-negative patients in large metropolitan hospitals. The benefits of routine prophylactic use of the immunoglobulin are questioned. (11 refs.)

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197 Icterus neonatorum. *Lancet*, 2(7926):169, 1975. (Editorial)

The resurgence in the incidence of jaundice in the newborn is discussed. Both Ghosh and Hudson and Davies et al. suggest that oxytocin infusion is partly responsible, but investigations by Gould et al. and by Campbell et al. do not support this conclusion. The workers at Queen Charlotte's Maternity Hospital, London, found a significant correlation between the use of epidural anesthesia and significant jaundice (serum-bilirubin more than 290μmol/litre). Other factors which correlated positively with these grades of jaundice were abnormal delivery, especially by vacuum extraction, preterm delivery, and a poor past obstetric history. Breast-feeding was not significantly associated with jaundice, but the numbers of purely breast-fed babies were very small. These and other results suggest that active management of labor with early induction and instrumentation may exaggerate physiological jaundice, especially when epidural anesthesia is practiced. (5 refs.)

198 **MCINTOSH, NEIL.** Day-transfusion centre for thalassaemics. *Lancet*, 2(7923):42, 1975. (Letter)

A method for combatting the problem of loss of school time in thalassemics undergoing blood transfusions is reported. The Whittington Hospital currently treats 19 thalassemic children, transfusing them at approximately 6-weekly intervals. The children are seen in a special outpatient clinic, 3 or 4 each Monday morning between 9 and 10 a.m. The hematology laboratory measures hemoglobin before the children are seen by the pediatrician, who then examines them and cross-matches blood as necessary. This allows the children to be back at school between 9:30 and 10:30 a.m. Transfusion is carried out on Friday or Saturday nights starting at about 8 p.m., the children thus sleeping through the major part of the transfusion. They go home early in the morning, thus missing no further schooling and little weekend home life. The following evening they come to the ward to have a posttransfusion hemoglobin estimation. This is possible as all the patients live within a few miles of the hospital. The chelation procedure is intensive: 3g of desferrioxamine per pint of blood transfused and 750-1000mg desferrioxamine intramuscularly per day. With this regime the eldest children are in negative iron balance. (1 ref.)

199 **CONSTANTOULAKIS, MATTHEW; PANAGOPOULOS, GEORGE; & AUGOUSTAKI, OLGA.** Stature and longitudinal growth in thalassemia major: a study of 229 Greek patients. *Clinical Pediatrics* 14(4):355-368, 1975.

A series of 133 males and 96 females (7 months to 28 years old) with homozygous b-thalassemia, who were regular blood-transfusion patients, was studied. In 172 patients, hemoglobin-hematocrit estimations were performed at least once every 3 months for several years. Each patient's height was recorded on at least 2 occasions, and 44 (8 months to 18 years old) had their height measured every 3 months for 4-6 years. Statistical analysis was performed on data from 171 patients to obtain correlations between the height (percentile) and age, hemoglobin levels, total blood transfused, and severity of the disease. A high percentage of the patients were short and had a lag in growth, although some severely affected patients attained normal height. An initial normal growth velocity decreased after the age of 6 years in males and 8 years in females. Multiple regression analysis showed a significant relationship between age and height of the patients. Bone age lagged significantly behind chronological age. Low hemoglobin levels and severity of the disease hindered normal growth, but neither relationship was statistically significant. There was no adolescent spurt of growth, but a height gain between 18 and 21 years of age was detected. This absence of pubertal spurt may be explained in terms of a possible hormonal influence. These findings suggest that early transfusions with maintenance of higher hemoglobin levels and early treatment of hemosiderosis are indicated. (17 refs.)

200 **SIMS, D.G.; & NELIGAN, G.A.** Factors affecting the increasing incidence of severe non-haemolytic neonatal jaundice. *British Journal of Obstetrics and Gynaecology*, 82(11):863-867, 1975.

Because of conflicting evidence about the possible causes of neonatal hyperbilirubinemia, retrospective analyses were carried out in 1,032 infants without evidence of rhesus isoimmunization. Fifty-seven babies (the index cases) developed hyperbilirubinemia in accordance with the definition of a plasma unconjugated bilirubin level of more than 15mg/100ml in a term baby and 13mg/100ml in a preterm infant. Preliminary

analyses confirmed the important contribution of preterm birth to the development of hyperbilirubinemia. Forty-six index cases were matched with 92 controls who did not develop jaundice to compare the incidence of 8 possible causes of hyperbilirubinemia among the index and control groups. Induction of labor by "primary" oxytocin infusion and artificial rupture of the membranes were significantly more common in the index cases ($p<0.01$), but there was no difference in the incidence of "secondary" oxytocin used to accelerate spontaneous labor. Evidence suggests that the natural "priming" of the fetal enzyme systems was prevented by anticipating the natural onset of labor. There was a tendency for hyperbilirubinemia to be associated with epidural analgesia induced by high-dose oxytocin infusions. A higher incidence of postnatal weight loss in the index cases presumably contributed to the hyperbilirubinemia. (18 refs.)

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201 **GORDON, Y.B.; RATKY, S.M.; SOLA, C.M.; LEWIS, J.; BAKER, L.R.I.; & CHARD, T.** Circulating levels of fibrin/fibrinogen degradation fragment E in normal pregnancy, and in association with intrauterine growth retardation and perinatal asphyxia. *British Journal of Obstetrics and Gynaecology*, 82(12):958-963, 1975.

The incidence and importance of chronic low-grade coagulation abnormalities were assessed by investigating the use of a specific and sensitive radioimmunoassay for fibrin/fibrinogen degradation fragment E (FgE) when applied on a prospective basis to pregnant patients. Blood samples were collected; from 200 patients (1,300 samples) with normal pregnancy and delivery, 42 patients (290) who delivered a child with low birth weight for gestation period, and 83 patients (570) who delivered a child with 1 or more signs of perinatal asphyxia. The normal range of FgE was calcualted from the observed cumulative distribution, after standardization, for each week of gestation in normal pregnancy. No correlation was found between FgE values in the last 5 weeks of pregnancy and maternal parity, maternal age, infant birth weight, or perinatal asphyxia. Ten of the 42 patients with evidence of intrauterine growth retardation had FgE levels more than 2 standard deviations above normal on at least 1 occasion, and in 2 (5 percent) the levels were elevated consistently, suggesting chronic intravascular fibrin deposition and lysis. However, the substantial risks of drug therapy for this condition indicate that such treatment should be approached with caution in patients in whom a coagulation abnormality has not been identified rigorously. (31 refs.)

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202 **BEAZLEY, JOHN M.; & ALDERMAN, BRIAN.** Neonatal hyperbilirubinaemia following the use of oxytocin in labour. *British Journal of Obstetrics and Gynaecology*, 82(4):265-271, 1975.

The possibility of an association between the administration of oxytocin to mothers during labor and the subsequent occurrence of neonatal hyperbilirubinemia was investigated in 1,343 consecutive patients more than 37 weeks pregnant and delivered vaginally. The infants' serum bilirubin concentration was measured on the third and sixth days of life; a level of 12mg/100ml or more was considered an indication of hyperbilirubinemia. Analyses failed to reveal any significant difference between the incidence of hyperbilirubinemia following spontaneous labor and after labor induced or accelerated by oxytocin. Following induced labor, however, there was a direct dose-related association ($P<0.001$) between total oxytocin dose and incidence of hyperbilirubinemia. The incidence increased sharply when the total dose exceeded 20 units. There was no association between neonatal hyperbilirubinemia and birthweight or duration of spontaneous labor, but when labor was induced the proportion of infants with hyperbilirubinemia increased with the duration of labor. The occurrence of hyperbilirubinemia in the offspring of women whose labor is induced by amniotomy and oxytocin may reflect immaturity of the hepatic enzyme system in dealing with the bilirubin load. (4 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Trauma or physical agents

203 **ROGERS, GEORGE W., JR.; & RICHMOND, BERT O.** Results on the Slosson Drawing Coordination Test with Appalachian sheltered workshop clients. *Resources in Education (ERIC)*, 11(4):88, 1976. 9 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $1.58, plus postage. Order No. ED115053.

The ability of the Slosson Drawing Coordination Test (SDCT) to diagnose brain damage in Appalachian sheltered workshop clients was compared with that of 2 other diagnostic methods. The SDCT and the Bender Visual Motor Gestalt Test were administered to 54 workshop clients, aged 13-52 years old. The SDCT labeled 29 Ss as possibly brain damaged, while only 17 Ss were so labeled by the Bender-Gestalt. Clinical analysis of the Ss by 2 psychologists indicated possible brain damage in only 13. The large discrepancy in results between the SDCT and the other diagnostic methods employed suggests caution when using the SDCT as a screening agent for brain damage in Appalachian clients.

204 **KINSBOURNE, MARCEL.** *Models of Learning Disability: Their Relevance to Remediation.* Toronto, Canada: Hospital for Sick Children, Neurology Department, 1975. 9 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76, HC $1.58, plus postage. Order No. ED115400

A system of classification for physicians faced with prescribing remedial instruction for children with learning disabilities is presented. Three models of the causes of learning disability are suggested: 1) the deficit model, which assumes a limited malfunction of the brain; 2) the difference model, which stresses normal variability in the pattern of development of mental abilities; and 3) the delay model, which suggests transitory immaturity or lag in development as the cause for learning disability. The classification of remedial methods is based on their adherence to a process-oriented or goal-oriented style of management and their implicit model of etiology. A management style which tailors individualized instruction to the child's specific area of academic weakness is suggested.

205 **SOEFFING, MARYLANE.** Abused children are exceptional children. *Exceptional Children*, 42(3):126-133, 1975.

The possible relationship between the existence of a handicap in a child and abuse neglect suggested by some studies is examined. Although high incidences of MR, emotional disturbances, physical defects, neurologic problems, and growth failure have been reported in abused children, whether impairment antedates abuse or stems from it is not clearly demonstrated. All states have child abuse reporting laws, and educators and others working with children have both the opportunity and the responsibility to identify and report suspected cases of neglect or abuse. The child's behavior as well as parental attitudes may suggest abuse or neglect. A federal program is helping states and localities to identify and prevent abuse and to provide services to abused children and their families, and a model program is offering direct services. Further research should include investigation of qualities in a child which lead to abuse, comparative risks of abuse in handicapped and nonhandicapped children, and educational correlates of abuse. (29 refs.)

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206 **JOHNSTON, ROBERT B.; BENDER, MICHAEL; THOMPSON, CAROLYN R.; MAGRAB, PHYLLIS R.; & SMITH, KENNETH E.** Minimal brain dysfunction. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment,*

Treatment, Education. Baltimore, Maryland: University Park Press, 1976, Chapter 22, pp. 471-492.

The complexity of minimal brain dysfunction and the confusion surrounding the various medical opinions of children with learning disabilities necessitate the coordination of efforts of a multidisciplinary team of concerned professionals. A major responsibility for remediation and management of children with learning disabilities lies with the educator, not with the physician, yet it is not unusual for children with these disorders to end up in the physician's office. In the case of a 9.5-year-old boy referred to a pediatrician by his third grade teacher for evaluation of behavior and learning problems, with a specific request to rule out brain damage, the pediatrician made an initial diagnosis and then coordinated further intervention efforts by requesting the services of a psychologist and a speech and hearing specialist for additional assessment and recommendations. A social worker also was called upon to assist actively in discerning and dealing with the dynamics of the boy's behavior problems, especially as they related to faulty family interactions and adjustments. Establishment of an effective liaison with the school for mutual discussion and planning of programs which involve the use of medication and specific remedial educational approaches is an important part of any intervention in this type of problem. While the physician in this case remained active in the overall coordination of efforts, he depended heavily upon the educator and the social worker. (39 refs.)

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207 **SCHRAG, PETER; & DIVOKY, DIANE.** Introduction. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, pp. xi-xvii.

Within the past 5 years, a profound shift has taken place in the way Americans and American institutions treat children. Drawing on hard medical evidence that a small percentage of the population suffers from brain damage or other neurologic or emotional problems, schools, doctors, and juvenile authorities have begun to attribute similar or related "ailments" to millions of youngsters whose only demonstrable ailment is that their behavior is regarded as troublesome to adults. Simultaneously, traditional methods of management and control (threats, punishment, school suspensions) have been replaced by a collection of psychosocial and psychochemical techniques and by a policy of "early intervention," which views almost every form of undesirable behavior as a medical ailment requiring treatment. Gradually and subtly, an entire generation is being conditioned to distrust its own instincts and to rely upon the institutions of the state and upon technology to define and engineer its "health."

208 **BHAGAVAN, HEMMIGE; COLEMAN, MARY; & COURSIN, DAVID BAIRD.** The effects of pyridoxine hydrochloride on blood serotonin and pyridoxal phosphate contents in hyperactive children. *Pediatrics,* 55(3):437-441, 1975.

Because of the possible side effects and potential abuse of amphetamine and methylphenidate in the treatment of hyperactivity, an alternative approach that was safe and effective was sought. As a first step toward exploring the possible value of pyridoxine hydrochloride in hyperactive children, baseline levels of serotonin and pyridoxal phosphate (PLP) were determined in the blood of a group of functional hyperactive children, and the effect of pyridoxine on the serotonin and PLP content in the blood of 4 of these children is documented. A significant decrease in serotonin content was found in blood samples from hyperactive patients as compared with controls. Oral doses of pyridoxine resulted in an appreciable increase in serotonin content and a very large increase in the PLP content of blood in 4 patients in whom these parameters were investigated. These latter data confirm an earlier finding that a decrease in the total hydroxyindole content of whole blood of hyperactive children is due to a decrease in serotonin itself. Further studies are necessary to elucidate the mechanism of action of large doses of pyridoxine in hyperactivity. (24 refs.)

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209 **SCHRAG, PETER; & DIVOKY, DIANE.** *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, 285 pp. (Price unknown).

On the basis of examination of the scientific literature and a probe of the underlying causes of this new trend, the replacement of old-fashioned punishment and control of so-called hyperactive youngsters by new forms of medical and social treatment is documented. All aspects of the rapidly spreading ideology of "early intervention" are assessed, and the links established between the younger generation and the state are discussed.

210 **SCHRAG, PETER; & DIVOKY, DIANE.** In the matter of predelinquents. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 5, pp. 132-174.

The rationale for most of the delinquency programs established in the past decade, usually with federal support, is "diversion," or, more generally, prevention and treatment. Increasingly, the schools and the delinquency projects alike are associating delinquency with LD, hyperactivity, and various common neurological "dysfunctions." Although the predelinquency projects function on the banal assumption that the formal processes of the juvenile justice system tend to be stigmatizing and ineffective, these new projects are often indistinguishable from the juvenile justice system. Predominant among the newly formed delinquency theories is the one that derives from the association of delinquency with learning disabilities and/or minimal brain dysfunction. Ultimately, the methods adopted to "treat" delinquents in detention centers become the tools of prevention in the schools.

211 **SCHRAG, PETER; & DIVOKY, DIANE.** The smart pill. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 3, pp. 68-107.

An estimated 500,000 to 1,000,000 children, mainly boys, live on a regimen of psychoactive drugs, including Ritalin (methylphenidate hydrochloride), Dexedrine (dextroamphetamine), Cylert (magnesium pemoline), and others. Most are between ages 6 and 13, although some are as young as 2 years old, and an increasing number stay on the drugs through, and beyond, adolescence. These children are all targets of a relatively new phenomenon that regards chemical intervention as a legitimate solution to the classic problem of controlling and making acceptable the behavior of children who annoy teachers, upset classroom routines, or otherwise fail to conform to adult expectations. Early in 1975, the Food and Drug Administration decided that minimal brain dysfunction lacked sufficient medical foundation to be associated with the prescription of drugs. Symptoms to be listed on package labels for these drugs would be forms of behavior: short attention span, hyperactivity, impulsiveness. In effect, the decision made unacceptable behavior by itself a sufficient reason for feeding children psychoactive drugs, and it legitimized a large number of imprecise studies of disruptive behavior.

212 **SCHRAG, PETER; & DIVOKY, DIANE.** The invention of a disease. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 2, pp. 30-67.

In less than a decade, the invented ailment based upon troublesome behavior has grown from virtual obscurity to something well beyond epidemic proportions. Its most common name is "learning disabilities" (LD), but it is also associated with "minimal brain dysfunction," "hyperkinesis," "impulse disorder," and other conditions and syndromes. By 1974, a growing number of states were planning to screen their entire school populations for these disabilities. The LD movement takes its doctrine from a primitive body of medico-educational theory, updated and extended to meet the political and social necessities of the age. It has swept up countless middle class, suburban, college-educated good parents and good citizens who felt their children were freaks until lables were found for the children and the parents started to organize. It is impossible to assess the full impact of the movement, but it is clear that it is school officials, policemen, judges, and probation officers who are finding the LD ideology especially useful.

213 **SCHRAG, PETER; & DIVOKY, DIANE.** The Hutschnecker memo. In: Schrag,P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 1, pp. 3-29.

A proposal made by Dr. Arnold A. Hutschnecker (and approved by then President Richard Nixon) concerning the mass testing of all children between the ages of 6 and 8 years to detect violent and homicidal tendencies, and a program offered by the late Dr. James E. Allen, Jr., that visualized the collection of data on every 2.5-year-old child to be used in planning an individualized learning program for him, signaled the beginning of essentially a new era in the social and psychological control of children in the United States. Within 3 years of delivery, Allen's speech would be pulled from apparent oblivion and used as the basis of a proposal by the San Francisco (California) Unified School District for a city-wide program to test and "treat" all children beginning at age 3. Within 2 years of their submission, Hutschnecker's ideas would be embodied in projects to identify "predelinquents" in Southern California and children with "maladaptive tendencies" in Baltimore, Maryland. The proposals coincided not only in timing but also in their medical language and their metaphors--prescription, diagnosis, treatment. Within a 5-year period beginning in 1969, the country suffered a veritable epidemic of "learning disabilities." The system became the given, and the individual had to be transformed if he could not live in it.

214 **SCHRAG, PETER; & DIVOKY, DIANE.** The elements of self-defense. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Appendix, pp. 230-238.

Although there are no assured means of resistance against the arsenal of intervention tools being used with American children today, certain techniques and resources have been used successfully in the past and may provide some means for self-defense in the future. First and foremost, the aura of hyperactivity and learning disability must be demystified. All laws, regulations, and directives pertaining to measures used for, or against, children should be put in writing. All community groups with experience in dealing with schools, welfare systems, and the police should be utilized. Schools should be warned that a child's record will be checked every few months, and that no screening or testing should be performed without written consent. A lawyer or lay advocate experienced in the field should be present at all formal disciplinary confrontations with institutional representatives. A growing number of organizations will provide various forms of assistance to children and parents, or will at least know what sort of help is available elsewhere.

215 **MILLICHAP, J. GORDON.** *The Hyperactive Child with Minimal Brain Dysfunction: Questions and Answers.* Chicago, Illinois: Year Book Medical Publishers, (No date), 170 pp. $10.95.

Answers to questions most commonly asked regarding hyperactive behavior and related disorders are presented. Included are new and improved treatment measures, informative case studies, and numerous illustrations, charts, and tables. Diagnostic procedures are explained with interpretations of signs and symptoms. Recommended for practitioners, parents, and teachers.

Contents: Definitions & Frequency; Causes of Minimal Brain Dysfunction; Symptoms, Signs & Syndromes; Speech & Language Disorders; Dyslexia & Other Specific Learning Disorders; Diagnostic Evaluation: Pediatric Neurology Examination and the Electroencephalogram; Diagnostic Evaluation: Neuropsychologic Tests, Special Senses -- Hearing & Vision Tests; Differential Diagnosis -- Related Disorders; Treatment: General & Educational Management; Treatment: Drug Therapy, Diets & Other Remedies; Prognosis & Prevention; Conclusions & Research Goals: Case Histories.

216 **SULZBACHER, STEPHEN I.** The learning-disabled or hyperactive child, diagnosis and treatment. *Journal of the American Medical Association,* 234(9):938-941, 1975.

A diagnostic procedure designed to facilitate individualized treatment of learning-disabled or hyperactive children is outlined. Differential diagnosis includes clinical examination, analysis of the referral complaint, recognizing the child's perception of the problem, and pinpointing

behavior that has caused concern. Objective evaluation of the severity of the disorder and the results of treatment depends on an ongoing record of the frequency of targeted behavior deviations in the classroom and at home. Stimulant medication, various behavioral modification techniques, and carefully programmed educational curricula can help some children with minimal brain dysfunction (MBD) control their hyperactivity and improve school performance. Emotional dysfunctions and maladaptive behavior in the family and other social settings are more difficult to treat. Biofeedback and self-control techniques such as auto-suggestion are 2 new procedures which may help these aspects of MBD. (9 refs.)

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217 **STEIN, MARTIN T.** Minimal brain dysfunction: a note of caution in management. *Clinical Pediatrics*, 14(9):840-841, 1975.

A 2-year personal experience with 150 five- to twelve-year-old children referred by teachers, counselors, and school psychologists for learning problems is described. Approximately 50 of the children were judged as hyperactive in addition to being diagnosed as minimally brain damaged. A trial with methylphenidate (Ritalin), 5-20mg in the morning and at noon, was instituted, with dosage adjustments made to a maximum of 60mg daily. Results agreed with published data: about 75 percent of the patients demonstrated an immediate and impressive improvement. However, biweekly follow-ups for 1 or 2 months, then every 3 months, showed that in a significant number of the children the premedication behavior patterns began to reappear. Higher doses of medication had no effect, and a significant number of moderately severe emotional problems, especially family conflicts in which the child with minimal brain damage played a critical role, were either uncovered or their severity fully appreciated. Because the initial response to medication of this group of children could not be differentiated from those who continued to improve during follow-up, it is stressed that all children with a diagnosis of minimal brain damage should be studied from a psychosocial as well as neurological point of view. The existence of underlying personal and/or family emotional conflicts may be blurred by the first spectacular effects of medication.

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218 **LONEY, JAN; & ORDONA, TRUCE T.** Using cerebral stimulants to treat minimal brain dysfunction. *American Journal of Orthopsychiatry*, 45(4):564-572, 1975.

A study was made of the medical records of 135 six- to twelve-year-old males with minimal brain dysfunction treated with methylphenidate (Ritalin) at the Child Psychiatry Service of the University of Iowa, to identify factors which would predict clinically rated response to the drug. During the period examined (January 1967 to September 1972), there was a 2-year span during which the child's diagnosis and from of treatment, but not his outcome, was significantly influenced by which physician was in charge on the day of the evaluation; during a second 2-year period, these physician factors dissipated. Moreover, because there were no explicit rating scales, there was no systematic identification of "target" symptoms. Data on side effects of Ritalin show that little was done in long-term follow-up of the effects. It is evident from this survey that a systematic follow-up is needed which deals with side effects, the child's feelings about medication, and his classroom behavior before and after drug treatment. More use should be made of a target symptom approach and clinical placebo trials. Determination of when to use stimulant drugs—with what kind of child and at what point in his life—is a question which still needs investigation; the answer may depend on what is meant by improvement and what is hoped to be accomplished, and will always be the end result of complex value judgments. (18 refs.)

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219 **ZENTALL, SYDNEY.** Optimal stimulation as theoretical basis of hyperactivity. *American Journal of Orthopsychiatry*, 45(4):549-563, 1975.

Reported observations of hyperactive children have shown that under conditions which would be labeled highly stimulating, hyperactive behaviors actually appear to decrease. A review of research results suggests that hyperactive behavior may result from a homeostatic mechanism that functions to increase stimulation for a child experiencing insufficient sensory stimulation. An "optimal stimulation" theory is proposed which predicts that conditions of *low* stimulation will be more likely to elicit hyperactive behavior than those of high stimulation. Findings from studies which examined the effects of manipulated sensory stimulation on attention and task performance in hyperactive children and from studies on the effects of sensory deprivation in adults tend to support this theory. The effectiveness of other treatments for managing hyperactive children can also be explained by the theory of a homeostatic mechanism that attempts to optimize sensory input: Behavior modification increases environmental stimulation, while drug therapy increases the effectiveness of existing levels of stimulation in the environment. (81 refs.)

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220 **SMITH, SELWYN M., & HANSON, RUTH.** Interpersonal relationship and child-rearing practices in 214 parents of battered children. *British Journal of Psychiatry*, 127:513-525, 1975.

A self-report inquiry into child-rearing practices of 214 parents of 134 battered children under 5 years old indicated that the demanding behavior of battering parents did not exceed that generally seen in low social class populations. Normative data were obtained from parents of 53 children admitted to the hospital as emergencies other than trauma or accident. Index children and controls did not differ significantly in social maturity. Battering parents were characterized by inconsistency and unreasonableness in child management as seen in comparisons between lack of demonstrativeness and a tendency toward lax supervision. Other characteristics of battering parents included unhappiness and hostility resulting from interpersonal difficulties which began in childhood. In general, parents who admitted battering (44 percent) exhibited features significant for the sample as a whole. Findings are related to the importance of prevention and early detection in high risk groups. (41 refs.)

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221 **LYNCH, MARGARET A.** Ill-health and child abuse. *Lancet*, 2(7929):317-319, 1975.

The claim by parents of abused children that the abused child is different and more difficult to rear than his brothers and sisters was investigated. A group of unequivocally abused children was compared with their nonabused siblings in respect to 6 factors in their early lives: abnormal pregnancy, abnormal labor or delivery, neonatal separation, other separations in the first 6 months, and illnesses in the first year of life in the child and in the mother. These 6 factors emerged as highly significantly over-represented in the proband biography as compared with the control sibling group. The control siblings seem to have been exceptionally healthy, and, where population figures are available, show a lower than expected incidence of adverse factors. This survey suggests that episodes of ill-health in vulnerable families during pregnancy, delivery, and early childhood put the parent-child bond at risk. The striking good health of the brothers and sisters of the abused children seems to have preserved them from harm, while a sequence of minor disasters led up to the abuse of the probands. (14 refs.)

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222 **PALMER, SUSHMA; RAPOPORT, JUDITH L.; & QUINN, PATRICIA O.** Food additives and hyperactivity. A comparison of food additives in the diets of normal and hyperactive boys. *Clinical Pediatrics*, 14(10):956-959, 1975.

A dietary questionnaire administered to the parents of 79 hyperactive boys and 23 control Ss indicated no significant differences between groups in the consumption of foods containing additives. Within the hyperactive group, no significant differences were found between unmedicated children (12) and Ss receiving methylphenidate or imipramine. Results do not support Feingold's hypotheses that hyperactive children consume larger than normal amounts of food additives or that some hyperactive children have a genetic predisposition to hypersensitivity to food additives. Findings are discussed in terms of the small sample and uncontrolled nature of Feingold's study. (16 ref.)

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223 **FRAZIER, JAMES R.; & SCHNEIDER, HENRY.** Parental management of inappropriate hyperactivity in a young retarded child. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:246-247, 1975.

Conditioning procedures were successfully used by parents of a 3-year-old hyperactive MR boy (MA 18 months) to eliminate inappropriate hyperactive behavior at mealtime and after meals. A multiple baseline procedure was used, with parents taught to record inappropriate behaviors during and immediately following mealtime. They were trained to give positive attention to appropriate behaviors while ignoring inappropriate actions. When any one of several inappropriate behaviors occurred, a time-out procedure was used (fastening child to a chair in a darkened room). These procedures resulted in a sharp decrease in inappropriate behaviors, with a low rate maintained for approximately 5 weeks. (6 refs.)

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224 **WICHLACZ, CASIMER R.; RANDALL, DOLORES H.; NELSON, JAMES H.; & KEMPE, C. HENRY. The characteristics and management of child abuse in the U.S. Army-Europe.** *Clinical Pediatrics*, 14(6):545-548, 1975.

A systematic review is presented of a 12-month epidemiological study (1971-1972) of cases of child abuse and/or neglect brought to the Child Abuse and Neglect Board of a United States Army General Hospital in Germany. Fifty-six cases were considered by the Board, which serves approximately 100,000 military personnel and family members; this is a significantly higher rate than reported in some cities in the United States. Moreover, since the United States Army—Europe has no mandatory reporting laws, the incidence reported appears a conservative estimate. The Army Health Nurse is the Board member most often involved in the screening and evaluation of reported cases of abuse and neglect; the social worker, pediatrician, and child psychiatrist also are consulted frequently. The 56 cases included physical assault, severe discipline, neglect, and sexual abuse; 5 children died (9 percent). Possible reasons for this abuse are considered. A unique problem involved in the management of child abuse cases in United States military communities in Europe is the lack of civilian child welfare resources. German agencies are heavily burdened with their own social problems. Although, among military families returning to the United States, continuity of treatment is assured by referrals to American agencies, there is a clear need for additional programs abroad to meet the challenge of this problem through aggressive case-finding efforts and early intervention. (5 refs.)

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225 **GARDNER, RICHARD A.** Psychotherapy in minimal brain dysfunction. *Current Psychiatric Therapies*, 15:25-38, 1975.

Psychotherapeutic techniques useful in treating children with symptoms secondary to the primary organic deficit in minimal brain dysfunction (MBD) -- withdrawal from peers, feelings of insecurity, and impaired academic motivation – are discussed. The psychotherapist must ascertain the specific nature of the child's organic impairments, since failure to consider these may compromise the child's therapy. The active participation of parents in the child's therapy can be extremely valuable. In the mutual storytelling

technique, the therapist elicits a self-created story from the child, surmises its psychodynamic meaning, and then tells the child a responding story of his own, using the child's characters in a similar setting but introducing healthier adaptations than the pathological ones in the child's story. Several games useful in treating the child with MBD are described: the talking, feeling, and doing game; the bag of toys game; the bag of things game; the bag of words game; and Scrabble for Juniors. These games are used as tools in the therapist's armamentarium to elicit expression of feelings, fantasies, associations, and other meaningful communications from the child. They also enable the therapist to impart meaningful communications without relying on the development of insight in the child. Because they involve both the child and the therapist in a mutually enjoyable experience, they can contribute to a deepening of the therapeutic relationship. (26 refs.)

226 **SCHNACKENBERG, ROBERT C.** Caffeine therapy for hyperkinetic children. *Current Psychiatric Therapies*, 15:39-44, 1975.

Small amounts of caffeine in coffee were administered to children with minimal brain dysfunction and hyperkinetic impulse disorder to see whether it maintained relief from symptoms without the undesirable side effects of stimulant drugs. Children whose symptoms had improved on methylphenidate but who had experienced side effects were transferred to coffee in the form of one cup at breakfast and one at lunch. Teachers administered a rating scale for hyperkinesis during the child's last month on methylphenidate, his last week off medication, and his third week on coffee. A score of 24 or more on the rating scale suggests the presence of hyperkinesis; scores of 18 or less are considered to indicate absence of significant hyperkinesis. The mean score of children on methylphenidate was 17.3, the mean score while receiving no drugs was 25.6, and the mean score on coffee was 17.6. Annoying side effects elicited by methylphenidate disappeared, and no side effects could be traced to the coffee. The experiment suggested that the 200-300mg range of caffeine may be optimal. For children who object to the taste of coffee, caffeine may be administered in 250mg time-release capsules. Including other therapies along with stimulants – prevention, psychotherapy with child and parents, major tranquilizers, behavior therapy, special education techniques, and activity group therapy – may determine success or failure in the treatment of the hyperkinetic child. (9 refs.)

227 **ADAMS, JERRY; KENNY, THOMAS J.; PETERSON, ROLF A.; & CANTER, ARTHUR.** Age effects and revised scoring of the Canter BIP for identifying children with cerebral dysfunction. *Journal of Consulting and Clinical Psychology*, 43(1):117-118, 1975.

Item analysis of the Canter Background Interference Procedure (BIP) was undertaken to weight items in a way which would maximize efficiency in discriminating between children with and without cerebral dysfunction. The test requires Ss to draw the Bender-Gestalt designs on plain white paper and on paper with randomly interwoven curved black lines. Deterioration under the latter condition (BIP) is the critical variable. Items were retained on which at least proportionately twice as many Ss with cerebral dysfunction as without showed deterioration under BIP as compared to standard conditions. With selection of 29 out of 83 possible standard items and 42 of 83 items in the BIP condition, the overall improvement in "hit" rate increased from 84 to 86 percent. The hit rate using the newly selected items was 92 percent for 8- to 10-year-olds and 76 percent for 11- and 12-year-olds. When the older group was reassessed using Canter's original scoring for adults with newly established criteria, an overall hit rate of 94 percent was obtained. (3 refs.)

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228 **NEURINGER, CHARLES; GOLDSTEIN, GERALD; & GALLAHER, RICHARD B., JR.** Minimal field dependency and minimal brain dysfunction. *Journal of Consulting and Clinical Psychology*, 43(1):20-21, 1975.

Fifty four Ss were administered the rod-and-frame test and the Halstead Neuropsychological Test Battery to determine whether the "normal range" of field dependency might be associated with minimal levels of undiagnosed brain damage.

Findings indicate that there is a small but significant relationship between field dependency and performance on tests sensitive to brain dysfunction. Data are consistent with the relations found previously between extreme field dependency and demonstrable brain damage. (5 refs.)

Department of Psychology
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229 **THOMAS, ALEXANDER; & CHES, STELLA.** A longitudinal study of three brain damaged children. *Archives of General Psychiatry*, 32(4):457-462, 1975.

The developmental course of 3 children with brain damage (now 14 to 16 years of age) was followed since early infancy in the New York Longitudinal Study. Data were collected for each S on behavioral characteristics; patterns of parental attitudes and practices; clinical, neurological, and psychiatric evaluation, and psychometric findings at different ages between birth and the present day. In each case, the scope of the available data and the unique pattern of development provided a special opportunity for studying the emergence and evolution of behavioral styles, both normal and disordered, in brain-damaged children. Moreover, the early data on the 3 children were uncontaminated by bias, since brain damage was not suspected either at birth or in the first months of life. Each child has shown a different behavioral course that could not be explained solely in terms of motor dysfunction, intellectual deficit, parental managerial patterns, or more general features of environmental demand alone, but also required consideration of the constellation of temperamental organization. Patterns of adaptation and levels of functioning were the complex product of the interaction of all these factors. One child developed the clinical syndrome of childhood schizophrenia. (17 refs.)

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New York, New York 10016

230 **McKINNEY, GERALDINE.** Child abuse and neglect: a search for answers. *Social and Rehabilitation Record*, 2(3):13-14, 1975.

A recent survey was conducted by HEW's Social and Rehabilitation Service to determine the services that are being delivered and the problems encountered to assist states in improving their services to abused and neglected children and their families. The survey was carried out on an interview basis and was addressed to 10 states and 30 local departments of social services. Questions about helping abused and neglected children and their families were in the areas of major problems in delivering services, program description and administration, legal aspects of the problem, community support, and the department's view of what role the federal government should play. Agencies emphasized the overdependence on foster care, crisis intervention instead of early intervention, and inadequate or unavailable service resources as well as lack of manpower, training, and money. Agencies did not list poor administration as a problem, yet analysis of program descriptions indicated problems in administration as a key barrier to effective coordination and delivery of services. The states and cities felt that the federal role in child welfare services extended to the provision of national leadership in program development and the provision of training materials, technical assistance, national data collection, and public information. Agencies emphasized the importance of strengthening family functions and broad public information activity at the federal and community levels.

Community Services Administration
Social and Rehabilitation Service
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Washington, D.C. 20201

231 **ARNOLD, MILDRED.** Training trainers to reach abusive and neglectful parents. *Social and Rehabilitation Record*, 3(2):9-11, 1976.

A national training project for protective services and services in related fields to abused and neglected children and their families was initiated in 1973 to instruct staff development and supervisory staff of public agencies and other public officials with responsibilities for services to abused and neglected children. On the basis of the developed prospectus, a National Institute for the Training of Trainers in Protective Services was held in Denver (Colorado) December 16-20, 1974. Thirty-five faculty members of universities located in all 10 HEW Regions attended the institute.

Follow-up sessions were held throughout the United States during March and June 1975, with almost all trainers reporting extremely positive reactions of those they had trained. As part of each of the 3 follow-up sessions, a meeting was held with participants to deal with methodologies of imparting knowledge, skills, and attitudes to the adult learners. This project in training for protective services appears to have been very successful. More than 4,000 workers in all parts of the country have already received some training, and it is hoped that this nucleus will grow and will reach many more workers who are struggling with the problems relating to child abuse and neglect.

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232 **WENDER, PAUL H.** The minimal brain dysfunction syndrome. *Annual Review of Medicine: Selected Topics in the Clinical Sciences*, 26:45-62, 1975.

Because minimal brain dysfunction (MBD) is the single most common cause of chronic behavioral problems in the preadolescent child and the chronic psychological and psychiatric problem which most obviously responds to relatively minimal intervention, a broader recognition of the signs of the syndrome and the most useful modalities in its treatment are necessary. Behavioral abnormalities (motor behavior, attentional difficulties, impulse control, interpersonal relations, and emotional abnormalities) and perceptual-cognitive problems are the 2 major areas of dysfunction found in MBD children, although both may not be found in the same child. Family problems and "soft" neurological signs frequently accompany MBD, and its diagnosis is principally made by case history. Although in the past MBD has been believed to be a benign illness with a good prognosis, recent studies have indicated that MBD symptomatology may continue unabated in as many as a third of the disordered. Management of the MBD is accomplished principally through family education and counseling, medication with stimulant drugs (amphetamines and methylphenidate), and remedial education and psychotherapy for the child. MBD is an extremely common disorder of primary school-age children and a problem which may persist into adolescence and adult life unless the syndrome is recognized and properly managed. (58 refs.)

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233 **ZENTALL, SYDNEY R. SNIDER.** Effects of stimulation on activity and task performance in hyperactive children with learning and behavior disorders. *Dissertation Abstracts International*, 35(9):5977-A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-5165.

The influence of environmental stimulation on task performance and activity level was studied with 16 hyperactive Ss from a private school for children with learning and behavior disorders. Each S performed 2 tasks under conditions of high environmental stimulation on one day, and low environmental stimulation on another day. Task A was a voluntary inhibition of movement task, and Task B was a visual tracking task. Measured activity was significantly lower in the high stimulation condition than in the low stimulation condition, especially for Task A. Performance was also better on Task A, but the differences were not significant. Order effects were not significant, but performance on Task A was significantly poorer, and activity was significantly greater, on the second day than on the first day, regardless of stimulation condition. Older children were less active overall than younger children.

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MEDICAL ASPECTS — Etiologic Groupings
Postnatal growths and gross brain disease

234 **JOHNSTON, ROBERT B.; HARRYMAN, SUSAN E.; MAGRAB, PHYLLIS R.; SMITH, KENNETH E.; BENDER, MICHAEL; & FOX, LAWRENCE A.** Cerebral palsy. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 18, pp. 377-398.

An interdisciplinary management perspective is very important for children with cerebral palsy. Through a sharing of techniques and approaches, the effectiveness of each discipline is enhanced, problem areas are clarified, and a clearer understanding of the response of the family and potential modes of treatment is obtained. The pediatrician, who maintains a broad awareness of medical and neurodevelopmental aspects of various types of pediatric problems and is experienced in the traditional role of provision of care to include all needs, is in a unique position to coordinate the interdisciplinary efforts of the physical therapist, occupational therapist, social worker, psychologist, educator, speech and hearing specialist, nurse, and other concerned personnel. In the case of a 4-year-old child with athetoid cerebral palsy and MR, interdisciplinary communication was maintained effectively throughout the inpatient stay and during outpatient monitoring and intervention, with periodic team evaluations. (30 refs.)

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235 **VUIA, O.** The cortical form of subacute necrotizing encephalopathy of the Leigh type. A light- and electron-microscopic study. *Journal of the Neurological Sciences*, 26(3):295-304, 1975.

A case in which cerebral lesions supplied morphological data contributing to the identification of a form of Leigh's encephalopathy is presented. A 14-year-old boy presented with an occipital syndrome with chronic, relatively progressive evolution. He died from metabolic acidosis, which developed after he was operated on for brain tumor. Pathological study revealed foci of spongy degeneration in the thalamus and corpora quadrigemina characteristic of Leigh's subacute encephalopathy. Necrotizing alterations were observed in the occipital lobes; cavitating necrosis and alterations of the intrameningeal vessels were also noted, as well as lesions of the meningeal small size vascular bed. Capillary lesions showed proliferation of the endothelial and histiocytic cells; the histiocytes were laden with lysosomes and lipofuscin pigment. Glial changes included a nucleus poor in chromatin, with multiple osmiophil nucleoplasmic granules, cytoplasm rich in mitochondria, and dilated cisterna along which osmiophil granules were lying. Microscopic and ultrastructural data supported the existence of a subacute Leigh's encephalopathy, juvenile type, with a predominantly cortical localization evolving clinically with the chronic picture of an occipital syndrome in an older child. The basis of the disease may be a deficiency of one enzyme affecting carbodydrate degradation and producing metabolic acidosis. (15 refs.)

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236 **NORMAN, MARGARET G.; WAISBERG, HECTOR A.; & LOWDEN, J. ALEXANDER.** Progressive deafness and dementia in an 8-year-old boy. *Journal of Pediatrics*, 86(5):805-809, 1975.

A clinical pathologic conference considered the case of a child who developed auditory receptive aphasia and acquired dyslexia, followed by cortical blindness and optic atrophy, apraxia and dementia, and finally seizures with decorticate and decerebrate posturing. The patient, who was normal until shortly before hospital admission at 8 years old for progressive deafness (after antibiotic treatment for sore throat), died 4 years later. Brain biopsy failed to clarify the diagnosis. A maternal

uncle died in boyhood of a neurologic disease, suggesting a sex-linked recessive disorder in the family. Several diagnoses were hypothesized by participants in the case conference, including Schilder disease, adrenoleukodystrophy, and a disorder resulting from a transport defect or a defect in fibroblast membrane structure or degradation. (12 refs.)

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237 **SHAPIRA, EMMANUEL; & NADLER, HENRY L.** The nature of the residual arylsulfatase activity in metachromatic leukodystrophy. *Journal of Pediatrics*, 86(6):881-884, 1975.

The mutant enzyme found in metachromatic leukodystrophy (MLD), which is antigenically cross-reacting with normal arylsulfatase A (ASA), was studied to determine whether it retains enzymatic activity or is a completely inactive mutant in which the residual activity represents normal arylsulfatase B (ASB) activity in the ASA determination. Three rabbits were immunized with ASA and ASB purified preparations in complete Freund's adjuvant at multiple intradermal sites, and polyacrylamide electrophoresis, immunoelectrophoresis, and double gel diffusion were carried out. The soluble fraction of liver homogenates was prepared from 3 specimens of normal liver, 2 specimens from patients with the late infantile form of MLD, and 1 from a patient with juvenile MLD. The 3 normal liver homogenates were compared to the 3 MLD liver homogenates by double gel diffusion against the anti-ASB antibodies. Based on the observations that the residual ASA activity was not affected by adsorption with anti-ASA antibodies but was completely adsorbed by anti-ASB antibodies, it was concluded that the residual ASA activity in the 2 late infantile and 1 juvenile MLD liver samples is secondary to the residual ASB activity in the ASA-determining assay. Thus, the ASA antigenically cross-reacting protein in MLD has no residual ASA enzymatic activity. (20 refs.)

Department of Pediatrics
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238 **PODEANU-CZEHOFSKY, ILINCA.** Is it only the child's guilt? some aspects of family life of cerebral palsied children. *Rehabilitation Literature*, 36(10):308-311, 1975.

Psychological investigation and psychiatric interviews conducted with 65 cerebral palsied children indicated that they had many psychological problems similar to those of physically normal children. Qualitatively, cerebral palsied children had the same problems that normal children do regarding the development of self and the relationships inside the family. But crippled children showed more problems relating to identification with their peers. Only 2 of the 45 children attending normal schools reported no problems, compared to 8 out of the 20 children attending special schools. Although 52 of the 65 families reported problems, it is not easy to determine whether these problems are related to the presence of a handicapped child. Two case histories illustrate mixed factors in problem families. (12 refs.)

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239 **MACKENZIE, IAN G.** Abnormalities of the hip in cerebral palsy. *Developmental Medicine and Child Neurology*, 17(6):797-798, 1975.

Early operative treatment prevents dislocation of the hip in children with cerebral palsy and results in stable hips in approximately 50 percent of the children. The incidence of subluxation is halved and the number of dysplastic hips reduced. Operation to prevent subluxation of the hips in at risk children is indicated when there is less than 45 degrees of abduction of the hip, especially if there is an associated fixed flexion deformity or if radiographs show dysplasia. In children with established dislocation and those with increasing deformity after soft-tissue correction, more major surgery may be required. The goal of early surgery is to produce more stable hips before the children reach school age. (5 refs.)

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240 **SANDS, MILTON J.; MCDONOUGH, MICHAEL T.; COHEN, ALLAN M.; RUTENBERG, HAROLD L.; & EISNER, JOEL.** Fatal maligant degeneration in multiple neurofibromatosis. *Journal of the American Medical Association*, 233(13):1381-1382, 1975.

The development of sarcomatous degeneration is described in a 29-year-old MR woman with multiple neurofibromatosis. When the patient sought medical advice because of exertional dyspnea, chest x-ray showed a posterior mediastinal soft-tissue density overlying the apex of the right lung. Relatively rapid growth of the tumor led to death 7 months after the patient was initially seen. Although the long-term results of treatment of a superior vena caval syndrome caused by malignancy are usually disappointing, short-term improvement may follow the use of diuretics and supravoltage irradiation. (5 refs.)

Department of Medicine
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241 **BLECK, E. E.** Locomotor prognosis in cerebral palsy. *Developmental Medicine and Child Neurology*, 17(1):18-25, 1975.

Seven signs of postural and tonic reflex activity were examined in 73 preschool children with cerebral palsy or delayed motor development in an attempt to predict ambulation. Prognosis was accurate in 94.5 percent of the children studied, using a scoring method of one point for each abnormal reflex found. Prognosis was termed good for zero score, guarded for a 1 point score, and poor for 2 points or greater. An analysis of the child's walking potential, based on the simple procedures delineated, should be included in an assessment of treatment methods before therapy is undertaken.

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242 **JONES, BILL.** The importance of memory traces of motor efferent discharges for learning skilled movements. *Developmental Medicine and Child Neurology*, 17(1):17, 1975. (Letter)

In reference to previous correspondence regarding the Bobath method of treatment for cerebral palsy, the question of how the patient can best achieve voluntary control is posed. Further evidence is presented on the importance of visual rather than proprioceptive afference for basic motor skills. Studies of approaching and standing in infants and balancing in adults support the importance of visual afference. Data suggest that voluntary control of movement may be taught to cerebral palsied children through completely visual means. The need for further controlled evaluations of different methods of physiotherapy is emphasized. (6 refs.)

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243 **O'REILLY, D. ELLIOTT.** Care of the cerebral palsied: outcome of the past and needs for the future. *Developmental Medicine and Child Neurology*, 17(2):141-149, 1975.

Several surveys of the cerebral palsied population suggest that patients with mild spasticity and average intelligence can lead an essentially normal life. This group accounts for about one-quarter of the patients. Approximately 81 percent of the Ss who attended regular schools are employed or are in sheltered workshops. A larger proportion of this group had surgery (45 percent) than the overall average (29 percent). Normal mentality and independence in self-care are the chief criteria for a good prognosis for a child with cerebral palsy, and an attempt must be made to increase the number of patients in this group. For the 40 percent of the patients trained as children but unable to compete in society because of MR, motor problems, epilepsy, or a combination of disabilities, sheltered environment centers providing varying degrees of assistance and individualized constructive activities should be established. (9 refs.)

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244 **SUTHERLAND, DAVID H.; LARSEN, LOREN J.; & MANN, ROGER.** Rectus femoris release in selected patients with cerebral palsy: a preliminary report. *Developmental Medicine and Child Neurology*, 17(1):26-34, 1975.

The effects of surgical release of the proximal origins of the rectus femoris upon the walking patterns of 8 spastic children were studied with the aid of gait analysis techniques. Data are examined in relation to 2 theories concerning the effects of surgical release: 1) that release reduces hip flexion contracture and lumbar lordosis and diminishes crouch; and 2) that release primarily enhances early swing-phase knee flexion. In the patients examined, back-knee thrust did not improve because it was not caused by rectus contracture. A variable effect upon the hip was found: two patients had increased hip flexion, and a third had diminished hip flexion after surgery. Successes in 6 patients are attributable to improvements in knee flexion. Data are reviewed in terms of indications for surgery. (10 refs.)

Department of Orthopedic Surgery
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245 **DAVIES, PAMELA A.; & TIZARD, J. P. M.** Very low birthweight and subsequent neurological defect (with specific reference to spastic diplegia.) *Developmental Medicine and Child Neurology*, 17(1):3-17, 1975.

To ascertain the incidence of spastic diplegia in low birth weight children, 165 children born between 1961 and 1970, inclusive, who weighed 1500 grams or less were followed. Spastic diplegia occurred in 6 children, all born between 1961 and 1964. The only significant difference between the children with diplegia and the others born between 1961 and 1964 was a somewhat lower mean minimum rectal temperature on the first day of life. The decline in the incidence of diplegia in low birth weight children during the period under review is discussed in terms of changes in neonatal care relating to increased food intake in the first week and a greater awareness of the need to maintain body temperature in the thermoneutral range. (45 refs.)

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246 **MARTINEZ, A. CRUZ; FERRER, M. T.; FUEYO; E.; & GALDOS, L.** Peripheral neuropathy detected on electrophysiological study as first manifestation of leucodystrophy in infancy. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(2):169-174, 1975.

Nerve biopsy was used to detect a case of infantile metachromatic leukodystrophy in which symptoms started at 1 year of age (weakness and hypotonus in the lower extremities). Electrophysiological studies were typical of a polyneuropathy, indicating fibrillation and a reduction of the nerve conduction velocity to 30 percent of the average for normal children of the same age. Central lesions and mental regression, clinical signs of metachromatic leukodystrophy, were not evident until a year later. Metachromatic granules in the phagocytes and in the Schwann cells were shown through nerve biopsy, confirming the diagnosis. Sural nerve biopsy is the most appropriate method for the diagnosis of metachromatic leukodystrophy in peripheral neuropathy in infancy without obvious cause. (23 refs.)

San Carlos University Hospital
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247 **DELALIEUX, C.; EBINGER, G.; MAURUS, R.; & SLIWOWSKI, H.** Myoclonic encephalopathy and neuroblastoma. *New England Journal of Medicine*, 292(1):46-47, 1975. (Letter)

The case of an 8-month-old girl with myoclonic encephalopathy whose neurologic signs developed 7 months after ganglioneuroblastoma removal, without clinical or biologic signs of metastasis, is reported. Urinary determination of catecholamines and their metabolites showed them to be normal in the postoperative period. At 13 months, the girl was able to walk without assistance. Nineteen months after operation, she was readmitted for evaluation of inability to walk. On physical examination, she had titubation of the head, typical opsoclonus, and tremor of the eyelids. Urinary excretion of catecholamines, homovanillic acid, and vanilmandelic acid was normal. Although the thin-layer chromatographic techniques used

for the detection of isohomovanillic acid are highly sensitive, this metabolite was not identified in the urine. This case suggests that myoclonic encephalopathy can develop months after the complete resection of a neuroblastoma, and that toxicity of catecholamine metabolites and isohomovanillic acid is not an important factor in the pathophysiology of myoclonic encephalopathy. (5 refs.)

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MEDICAL ASPECTS — Etiologic Groupings
Malnutrition and growth disorders

248 **SIRISTINHA, STITAYA; SUSKIND, ROBERT; EDELMAN, ROBERT; ASVAPAKA, CHAIRAT; & OLSON, ROBERT E.** Secretory and serum IgA in children with protein-colorie malnutrition. *Pediatrics*, 55(2):166-170, 1975.

To test the clinical impression that malnourished children are prone to infections that occur at body surfaces, the level of secretory IgA was investigated in the nasal washings of children with protein calorie malnutrition (PCM) on admission and during dietary treatment, and serum IgA was measured concomitantly to evaluate the IgA system more thoroughly. Although measured concentrations of total protein, IgG, and albumin in nasal washings were reduced in children with PCM, only secretory IgA concentrations were significantly lower ($p<.01$) in PCM compared to normal children. Mean secretory IgA concentrations were significantly reduced on admission through hospital day 70 and returned to near normal thereafter. At 1 to 2 years after hospital discharge, mean concentrations of secretory IgA in nasal secretions were within normal limits. The concentrations of secretory IgA in nasal washings were lowest at a time when serum IgA was markedly elevated; serum IgA concentrations fell to normal values during dietary treatment. Relative deficiency of secretory IgA by itself was probably not enough to account for predisposing these children to infections: the ability to synthesize IgA antibody may not be impaired despite lower secretory IgA level, and other defects in immunity may be equally or even more responsible. But it is possible that a reduction in gastrointestinal secretory IgA, similar to that found in the nasal secretion, may promote the invasion of gram-negative organisms with production of septicemia, commonly seen in children with PCM. (23 refs.) (Author abstract modified)

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249 **BEITINS, INESE Z.; KOWARSKI, AVINOAM; MIGEON, CLAUDE J.; & *GRAHAM, GEORGE G.** Adrenal function in normal infants and in marasmus and kwashiorkor. *Journal of Pediatrics*, 86(2):302-308, 1975.

Adrenal function was studied in 6 patients with severe marasmus and 8 with marasmic kwashiorkor (MK) before and after nutritional therapy and in normal children of similar age or size (2 to 18 months old). Elevated plasma cortisol (F) concentrations were found in marasmic infants before therapy. This was usually associated with normal cortisol secretion rate (CSR), urinary 17-hydroxycorticoid (17OHCS) excretion, tetrahydrocortisol/tetrahydrocortisone (THF/THE) ratio, urinary free corticoids, and cortisoi. Normal diurnal variations of plasma F concentrations were found following therapy. In MK, plasma F concentrations were also significantly elevated in the morning and evening; they decreased slightly with therapy. CSR was low before and after treatment; THF/THE ratios, urinary 17OHCS excretion, and urinary free corticoids and cortisol were not significantly different from those of control infants or patients with marasmus. Data do not demonstrate adrenal insufficiency in malnourished infants. (30 refs.)

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250 **LEVITSKY, L.; SPECK, S.; & SHULMAN, R.** Response to fasting in intrauterine growth retardation: a comparison of experimental models. Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):972, 1975. (Abstract)

Intrauterine growth retardation was produced in the newborn rat by ligation of maternal uterine vessels (31) or by maternal dietary restriction (35). Infants were delivered at term by cesarean section and fasted for 8 hours. Ligation and restriction animals manifested initial hypoglycemia compared to controls. However, low blood glucose persisted and was accompanied by insulin levels comparable to controls in ligation Ss, while restriction Ss recovered from hypoglycemia and showed decreased insulin levels. The data parallel the clinical findings of hyperinsulinemia in some human infants with intrauterine growth retardation.

251 **TSANG, REGINALD C.; GIGGER, MARDI; OH, WILLIAM; & BROWN, DAVID R.** Studies in calcium metabolism in infants with intrauterine growth retardation. *Journal of Pediatrics*, 86(6):936-941, 1975.

Serial serum calcium (Ca) values were analyzed in relation to clinical and biochemical factors in 47 infants with intrauterine growth retardation (IUGR). Serum concentrations of Ca, magnesium, phosphorus, glucose, and protein, and blood pH determinations were carried out at 12, 24, 48, and 72 hours of age. The lowest recorded serum Ca level in 70 infants who were appropriate for gestational age (AGA) was significantly correlated with gestational age (GA). The lowest serum Ca value for all but 2 of 47 IUGR infants fell within the 95 percent fiducial limits for serum Ca levels in AGA infants of comparable GA. Serum Ca concentrations in IUGR infants were significantly correlated with birth asphyxia and bicarbonate therapy for acidosis, and serum Ca concentration at 24 hours of age was inversely correlated with serum phosphorus values. The findings suggest that there is no inherent defect in Ca homeostasis in the IUGR syndrome, at least in the early neonatal period. The disturbances in early neonatal Ca homeostasis appear to be due to the adverse effects of the associated factors of shortened GA or birth asphyxia on neonatal Ca metabolism. The data do not support the hypothesis that IUGR infants have impaired placental transport of Ca. (18 refs.)

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252 **GRAHAM, GEORGE G.; & PLACKO, ROBERT P.** Free catecholamine excretion in the urine in normal infants and in those with marasmus or kwashiorkor. *Journal of Pediatrics*, 86(6):965-969, 1975.

Free catecholamine (epinephrine and norepinephrine) excretions of normal male infants 2.1-3.2, 4.5-10.6, and 12.5-18.5 months of age, respectively, and of infants and children with marasmus or marasmic kwashiorkor (MK) were measured on 3 consecutive days after admission to hospital and after partial rehabilitation. For normal Ss, first day excretions tended to be higher, particularly for older infants. Differences in 3-day excretion among normal Ss of the 3 age groups were not significant when corrected for surface area. For marasmic Ss, initial and recovery values were similar on a surface area basis and were not different from those of control children. Higher mean values were due to elevated excretions from infants with severe infection. For MK Ss, excretions were similar to those of control Ss, except in severely infected children. Day-to-day variation on admission was more marked than later and than that of the controls or marasmic infants (corresponding to the labile clinical and nutritional state of children with kwashiorkor), in whom subject-to-subject variation was more expressed. The findings emphasize the importance of distinguishing the effects of impaired nutritional state from those of severe infection in the study of hormonal responses in malnourished children. (6 refs.)

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253 **UPADHYAYA, KAILASH C.; VERMA, ISHWAR C.; & GHAI, O. P.** Chromosomal aberrations in protein-calorie malnutrition. *Lancet*, 2(7937):704, 1975. (Letter)

The chromosomes in 11 children with moderate to severe malnutrition and in 8 healthy infants were examined. Most of the aberrations were found either chromatid breaks, isochromatid breaks, or acentric fragments. The difference in the mean frequencies of chromosomal abnormalities in the malnourished and control children was significant ($p<0.05$). However, 5 of the 11 patients had the same frequency range as that of the healthy group. To take these variations into consideration, the χ^2-test was done, and the computed value of χ^2 was not significant. Children with protein-calorie malnutrition invariably had some sort of infection, but its effect did not seem to be reflected in the frequency of their chromosomal aberrations. While protein-calorie malnutrition per se may not cause chromosomal lesions, the combination of this condition with associated ailments and infections may result in increased frequency of chromosomal anomalies. (8 refs.)

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254 **MAUER, ALVIN M.** Malnutrition–still a common problem for children in the United States. *Clinical Pediatrics*, 14(1):23-24, 1975.

Two recent investigations–the Nutrition Survey conducted in 10 states and including both urban and rural children, and a Memphis (Tennessee) study of urban-poor children–indicated that malnutrition as defined by iron deficiency was present in up to 70 percent of preschool children and in 28 percent of children less than 3 years of age, respectively. Although clinical expressions of vitamin deficiencies have been uncommon in these surveys, the clinical consequences of malnutrition can be measured. Half the children in the Memphis study were below the twenty-fifth percentile in height and weight; height, weight, and skeletal, dental, and sexual development were retarded in the 10-state survey as well. A consistent finding throughout the studies was poverty, establishing a clear relationship between economic level and state of nutrition. Moreover, it was not the proportional content of nutrients in the diet but actual lack of food which was the main cause of growth retardation and anemia. Because evidence is accumulating that malnutrition may be a significant factor in adversely affecting brain development and behavior, the significance of malnutrition is a most important and challenging question. Three programs currently being implemented by state and federal agencies are local awareness studies, distribution of food supplements, and a combined approach which will improve health care generally while upgrading the diet. The pediatrician, with his background in disease prevention, is in an ideal position to document the existence of malnutrition in his community and to foster and support programs to eliminate it. (4 refs.)

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255 **ENGLISH, WOODRUFF J.; SUSKIND, ROBERT; DAMRONGSAK, DAMRI; KULAPONGS, PANJA; & OLSON, ROBERT E.** Can the growth of a neuroblastoma be influenced by a child's nutritional state? Observations in a patient treated for kwashkiorkor and later given a restricted diet. *Clinical Pediatrics*, 14(9):868-869, 1975.

A 17-month-old Thai female with neuroblastoma presented with an abdominal mass that had not changed in size since birth and the classical findings of kwashiorkor, characterized by edema, ascites, and a depressed serum albumin of 0.78gm/100ml. The patient was treated for pneumonia and sepsis with intravenous ampicillin and gentamicin, her electrolyte balance was restored, and her diet was increased to 100 calories and 1gm protein/kg. On day 26 of hospitalization, when the diet protein was raised to 4mgs/kg/day, the size of the abdominal mass began to increase dramatically. Metastases appeared in the form of tumor cells in the bone marrow and an orbital lesion, and coagulation factors again became depressed after an initial improvement. The parents removed the patient from hospital against medical advice and brought her to a spirit doctor who prescribed a restricted diet. A 1-year follow-up revealed that the patient was clinically

improved, with no evidence of tumor involvement in the left orbit and no increase in the size of the abdominal mass. These findings suggest that the metastases of the neuroblastoma may have been initiated by the patient's improved nutritional status, and that later, as the orbital tumor regressed, either the tumor had spontaneously matured into a benign lesion or regression occurred because the tumor's nutritional needs were not being met after the patient left the hospital. (6 refs.)

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256 **MONTGOMERY, R. DARRAGH.** Serum-albumin in kwashiorkor. *Lancet*, 2(7936):667, 1975.

The study of Dr. Hay and his colleagues, showing a clear correlation of serum albumin concentration and mortality rate in kwashiorkor, corroborates our findings in Prof. J. C. Waterlow's unit in Jamaica. In 200 cases, a constant gradation of mortality rate was observed, from 6 percent with serum albumin levels over 3g/100ml to 29 percent when serum albumin was 1.5g/100ml or less. Although infants with severe edema invariably had very low serum albumin, the converse was not the case. For this reason, and because of the difficulties in measuring edema, the serum-albumin level was a much more accurate single index of prognosis. (1 ref.)

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257 **BRADFIELD, ROBERT B.; JELLIFFE, D. B.; & IFEKWUNIGWE, AARON.** Milk intolerance and malnutrition. *Lancet*, 2(7929):325, 1975. (Letter)

While milk intolerance in the well-nourished child living in temperate areas is, at best, disagreeable, it may be catastrophic for the malnourished child living in the tropics. The consequences of gastrointestinal infection, particulary with salmonella and shigella, are much more severe in a child who is both malnourished and milk-intolerant, because the osmotic load of lactose remaining in the gut results in considerably more water loss over a period of time than would otherwise be the case. The pediatrician accustomed to recommending a particular dilution of dried whole milk should keep in mind that an equivalent weight of skim-milk powder contains about 20 percent more lactose. Recent famine relief experience in Biafra and Ethiopia has demonstrated that the high energy requirement of catch-up growth is better met by energy dense food mixes including milk rather than by milk alone. The addition of other nutrients, principally fat and sucrose, has the beneficial effect of reducing the relative lactose concentration. (3 refs.)

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258 **WINICK, MYRON; MEYER, KNARIG KATCHADURIAN; & HARRIS, RUTH C.** Malnutrition and environmental enrichment by early adoption. *Science*, 190(4220):1173-1175, 1975.

To investigate the hypotheses that malnutrition and environmental deprivation act synergistically to isolate the infant from stimulatory inputs necessary for normal development, and that enriching the environment might result in improved development, the current status of a group of Korean orphans adopted during early life by U. S. parents was examined. Severely malnourished children were compared with moderately malnourished and well-nourished children after all had been adopted into primarily middle-class American homes. Even the severely malnourished adopted Korean children surpassed Korean norms of height and weight. Marked initial size differences between malnourished and well-nourished infants almost entirely disappeared, but none of the groups reached mean values for American children of the same age. The mean IQ of the severely malnourished children was 102, about 40 points higher than that reported in similar populations returned to early home environments. School achievement for the severely malnourished group was equal to that expected of normal U. S. children, but there were statistically significant differences between the previously malnourished and well-nourished children in IQ

and achievement scores. Initially well-nourished children attained a mean IQ and achievement score higher than that of middle-class American children. (10 refs.)

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259 **POSKITT, E. M. E.** Defining malnutrition in the young child. *Lancet*, 2(7930):367, 1975. (Letter)

MacLaren and Read's proposed international classification of child nutritional status was applied to a group of 94 normal British children between 4 and 5 years old. Twenty three Ss were classed as overweight on the chart, 7 as mildly malnourished, and 1 as moderately malnourished. Socioeconomic status, dietary history, and clinical examination do not suggest malnutrition. Examination of height, weight, and skinfold thickness data suggests that the assessment of nutritional status from weight-for-height ratio tends to classify the tall child as overweight and the short child as malnourished. A classification resulting in an apparent incidence of 10 percent malnutrition in a well-off and well-fed group of children seems to have serious disadvantages. (4 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Inborn metabolic errors

260 **PAMPIGLIONE, G.; & HARDEN, ANN.** Is neuronal ceroid lipofuscinosis a single disease entity? *Transactions of the American Neurological Association*, 100:227-229, 1975.

Neurophysiological studies carried out in patients with storage of ceroid-lipofuscin material at the Hospital for Sick Children in London, England, suggest that the various types of neuronal ceroid lipofuscinosis should be considered as separate entities. A total of 47 children (CA 1 to 12 year) had combined studies of the EEG, electroretinogram, and visual evoked cortical responses. Three main groups of clinical and neurophysiological findings were differentiated: 6 infants presented with rapid motor and mental regression between 1 and 2 years of age and were reduced to a vegetative state by age 3 (clinical similarity to the new infantile, Santavuori form); 25 children had an insidious symptomatology beginning at about 2-3 years of age with occasional seizures, increasing motor retardation and MR, and myoclonic jerks (clinical similarity to the late infantile, Bielschowsky group), with death occurring usually at 6-7 years of age; and 5 patients with clinical symptoms beginning at about 6 years of age, with progressive visual loss and later mental deterioration and occasional seizures, were regarded clinically as belonging to the juvenile, Spielmeyer type (death did not occur until after 15-20 years of age). Thirteen patients who did not fit into these major groups probably represent further rarer subtypes.

261 **MAGRAB, PHYLLIS R.; JOHNSTON, ROBERT B.; KELLY, THADDEUS E.; BAER, MARION T.; HARRYMAN, SUSAN E.; GORGA, DELIA I.; KNOBELOCH, CALVIN; SMITH, KENNETH E.; LINSCHEID, THOMAS R.; BENDER, MICHAEL; & THOMPSON, CAROLYN R.** Phenylketonuria. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 19, pp. 399-430.

In an interdisciplinary approach to phenylketonuria (PKU), general information in all developmental areas is obtained through an initial

interview with one team member (assigned on rotation), and a series of evaluations to obtain a broad data base is then planned. On the basis of a developmental pediatric examination, an occupational therapy assessment, physical therapy assessment, a language and audiological evaluation, a psychological evaluation, a nutritional assessment, and an educational assessment, a working problem list is compiled, and team members develop an intervention strategy for each of the enumerated issues. In the case of a 4-year-old male child whose PKU was diagnosed at 4 months of age and who was started on an appropriate dietary regimen, some progression of developmental milestones had occurred, but his psychomotor development was quite retarded. In working with this child, the team raised the issues of current procedures for detection of PKU, effects of dietary intervention on its course, specific diets prescribed for PKU, feeding problems in PMR preschoolers, ambulation and psychomotor retardation, hearing and language assessment in low-functioning preschoolers, behavior modification and head banging, state mandates for education of PMRs, and the role of the institution in their management. (33 refs.)

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262 **ERBE, RICHARD W.** Inborn errors of folate metabolism. *New England Journal of Medicine*, 293(16):807-812, 1975.

A review of clinical and laboratory findings on 22 patients with inborn errors of folate metabolism classifies these disorders according to whether they involve the uptake, interconversion, or utilization of folates. A number of other inherited disorders produce secondary disturbances in folate metabolism, generally resulting in an increased requirement for folic acid. Although the number of patients with errors of folate metabolism is small, data suggest that the following criteria are useful in identifying patients who may have such disorders: 1) MR without a known cause, with or without other neurological abnormalities; 2) a very low serum folate level with a subnormal response to oral folic acid; 3) elevated plasma and urinary levels of homocysteine in the presence of a normal or low plasma methionine level; 4) elevated urinary levels of formiminoglutamic acid unresponsive to physiologic doses of folic acid; and 5) megaloblastic anemia appearing in infancy, unresponsive to physiologic doses of folic acid but responsive to either pharmacologic doses of folic acid or physiologic doses of reduced folate. (78 refs.)

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263 **PRIMROSE, D. A.** A note on fucosidosis in a mentally subnormal female. *Journal of Mental Deficiency Research*, 19(314):267, 1975.

The first case of fucosidosis to be reported in the United Kingdom is described. The case was earlier reported to be characterized by MR, bone abnormalities, a generalized skin lesion, and abnormal mucopolysaccharides. Further investigations have now shown the complete absence of alpha-L-fucosidase in both leukocytes and fibroblasts in this patient. (1 ref.)

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264 **ARSENIO-NUNES, M. L.; & *GOUTIERES, F.** An ultramicroscopic study of the skin in the diagnosis of the infantile and late infantile types of ceroid-lipofuscinosis. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(10):994-999, 1975.

A skin biopsy was carried out in 2 children suffering from early infantile (Santavuori) and late infantile (Jansky-Bielschowsky) types of ceroid-lipofuscinosis, and the presence of cytoplasmic inclusions identical with those found in the neurons of the cerebral cortex and of the myenteric plexuses was revealed. The skin biopsy procedure is noninvasive, easy to perform, and does not require general anesthesia or hospitalization. Data show that it is positive at a relatively early age, as stage biopsy was performed in the patients respectively 17 and 29 months after the clinical onset. Since cytoplasmic inclusions identical with those in the brain have also been demonstrated in skin cells of patients with

Spielmeyer-Vogt disease, skin biopsy might prove to be a simple and convenient technique for the diagnosis of most forms of ceroid-lipofuscinosis. (12 refs.)

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265 **GOEBEL, H. H.; ZEMAN, W.; & PILZ, H.** Significance of muscle biopsies in neuronal ceroid-lipofuscinoses. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(10):985-993, 1975.

To test the assumption that the morphological diagnosis of neuronal ceroid-lipofuscinosis (NCL) can be established by muscle biopsy, muscle specimens obtained at necropsy from 5 cases of neuronal ceroid-lipofuscinosis were examined. Four of the cases belonged to the Spielmeyer-Sjogren and one to the Jansky-Bielschowsky type of NCL. Skeletal muscles showed green-yellow autofluorescent granules, chiefly packed beneath the sarcolemma. Extraocular muscles showed autofluorescent pigment in larger amounts than the skeletal muscles, the greater amounts being present in patients with the Spielmeyer-Sjogren type. Many type 2 fibers and several type 1 fibers were atrophic. Under electron microscopy, the sarcomeres appeared to be fairly well preserved, with autolytic effects confined chiefly to the sarcoplasmic reticulum and mitochondria. The cytoplasm between the myofibrils was often swollen and empty. Many pigment bodies, displaying the typical architecture of curvilinear bodies, were found within the muscle fibers. The ultrastructure of these residual bodies was uniformly curvilinear, suggesting that for the Spielmeyer-Sjogren and Jansky-Bielschowky types of the disease, the cell determines the fine architecture of the residual pigment body. Results indicate that skeletal muscle provides tissue suitable for diagnosis of the ceroid-lipofuscinoses. (24 refs.)

266 **LYON, BIRGIT BLATT.** Peripheral nerve involvement in Batten-Spielmeyer-Vogt's disease. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(2):175-179, 1975.

To evaluate the functional involvement of peripheral nerves and muscles in Batten-Spielmeyer-Vogt disease, results of electromyography and sensory and motor nerve conduction were studied in 23 patients ranging in age from 5 to 19 years. A slight to moderate slowing of the sensory conduction velocity was found in the median as well as in the sural nerve, more pronounced in the distal than in the proximal segments. Electromyographic findings were mostly normal. The finding of an evenly distributed slowing of nerve conduction velocity throughout the age classes, with no increase with age and duration of the disease, argues against progressive demyelination or loss of axons. A persistent change in nerve membrane permeability is a possibility. (11 refs.)

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267 **DEKABAN, ANATOLE S.; & ZELKOWITZ, MARVIN.** Fabry's disease: evaluation of age of onset and natural history as preliminary steps to replacement therapy trials. *Clinical Proceedings, Children's Hospital National Medical Center*, 31(10):223-228, 1975.

Age of onset, principal manifestations, and the course of Fabry's disease were investigated in 80 patients; an accompanying hypothesis was that therapy to be effective should be instituted before irreversible changes in organs and tissues take place. The onset of the disease occurred under the age of 8 in 23 patients, between the ages of 9 and 16 in 22 patients, and over age 16 in 11 patients, including 5 heterozygous females. Age of onset of the symptoms in 6 females heterozygous for the disease was over 16 years in 5 and under 15 years in one. Cutaneous angiokeratomas were present in 62 patients, and pain in the extremities was present in 50 of 54 male patients; 4 patients denied the presence of pain in legs and arms. Abnormally elevated blood pressure had been recorded in 6 of 50 male patients who were alive and in 13 of 23 deceased patients. Neurological abnormalities were noted with greater frequency with increasing age. Findings suggest that enzyme replacement therapy in patients with Fabry's disease should be considered early in life, before irreversible changes occur. (10 refs.)

268 **BUSH, J. W.; CHEN, M. M.; & PATRICK, D. L.** Analysis of the New York State PKU screening program using a health status index. La Jolla, California: University of California, San Diego, 1975. Available from National Technical Information Service, Springfield, Virginia 22161. Paper copy $3.75; microfilm copy $2.25. Order No. PB-243 585/7GA.

The cost effectiveness of the phenylketonuria screening program in New York State was assessed by means of a health status index. Under the program all births in the state are screened for this metabolic error, at an annual cost of $836,387. An average of 22 cases have been detected annually from 1965 to 1970. According to the health status index, which converts the benefit of the treatment to quality adjusted years of life, one year's operation of the program was judged to produce the equivalent of 189 years of completely well life, yielding a cost per function year of $2,896. This cost compares favorably with that of other widespread programs.

269 **TSO, MARK O.; FINE, BEN S.; & THORPE, HARVEY E.** Kayser-Fleischer ring and associated cataract in Wilson's disease. *American Journal of Ophthalmology*, 79(3):479-488, 1975.

A highly characteristic clinical feature of hepatolenticular degeneration (Wilson's disease) is Kayser-Fleischer ring of the cornea. Histologic studies, including histochemistry, electron microscopy, and electrobe x-ray microanalysis, are reported on the copper deposit, within the periphery of Descemet's membrane, that produce the Kayser-Fleischer ring.

270 **AUTIO, SEPPO.** Clinical features of mannosidosis. *Journal of Pediatrics*, 86(2):314, 1975. (Letter)

In response to previous reports on mannosidosis, diagnostic clues for the disease are presented on the basis of experience with 6 Finnish patients. Diagnosis was based on the presence of mannose-rich oligosaccharides in the urine and the demonstration of a defective activity of alpha-mannosidase in cultured skin fibroblasts, liver, or blood leukocytes along with the following clinical features: MR, skeletal changes, hearing impairment, coarse face, recurrent infections, clumsy motor functions, and signs of weakness of connective tissues. Further investigations to determine the presence of this disorder are indicated among MR patients with a gargoyle-like face and some of the other clinical features but without an excess of glycosaminoglycans in the urine. Vacuolized lymphocytes in the peripheral blood may be a diagnostic clue, but absence of them does not ensure the absence of the disease. (4 refs.)

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271 **BUCHANAN, GEORGE R.** Acute hemolytic anemia as a presenting manifestation of Wilson disease. *Journal of Pediatrics*, 86(2):245-247, 1975.

Case reports of 2 children indicate that severe acute hemolytic anemia can be an early manifestation of Wilson disease (hepatolenticular degeneration). A 10-year-old girl was well until she developed pallor, icterus, and dark urine 1 week after measles immunization. A 13-year-old boy was well until he was admitted to a hospital with a 3-week history of malaise, anorexia, and pallor and a 2-day history of icterus and dark urine. Morphologic changes of red blood cells were nonspecific, and standard diagnostic studies were not revealing. Wilson disease was diagnosed by urinary copper excretion patterns and liver biopsy (case 1) and slit-lamp examination (case 2). In individuals with Wilson disease large quantities of hepatic copper may be intermittently released in the bloodstream, causing transient rise of erythrocytic and urinary copper and acute hemolysis. Since episodes of hemolysis may antedate clinical signs of significant liver disease, all children over 6 years old with acute hemolytic anemia of unkown etiology should be investigated for Wilson disease. (9 refs.)

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272 **GROVER, WARREN D.; & SCRUTTON, MICHAEL C.** Copper infusion therapy in trichopoliodystrophy. *Journal of Pediatrics*, 86(2):216-220, 1975.

The effect of early copper therapy was studied in 2 cousins with trichopoliodystrophy, a sex-linked hereditary disease characterized by kinky friable hair and progressive neurologic dysfunction. Diagnosis was made in these patients at the ages of 3 days and 2½ months, respectively, and intravenous doses of copper were gradually increased until normal or near-normal serum values were achieved (5 days). Hepatic levels of copper in each patient gradually increased, and the muscle homogenate exhibited the capacity to oxidize pyruvate-3-^{14}C. Continued infusions of cupric salts (190-220μg/kg/day once or twice weekly) maintained elevated hepatic and serum concentrations of copper. By 6 months of age, the younger boy had reached a functioning level of 4 months old. However, the older cousin died at 15 months of age after progressive loss of neurologic functions. Early therapy may influence favorably the progressive neurologic dysfunction in trichopoliodystrophy. (12 refs.)

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273 **FISHER, DELBERT A.** Neonatal detection of hypothyroidism. *Journal of Pediatrics*, 86(5):822-823, 1975. (Editorial)

Severe MR due to thyroid hormone deficiency can be eliminated by mass screening efforts modeled after an experimental program in the province of Quebec. Hypothyroidism is 1 of 7 disorders for which infants in Quebec are routinely screened by using a series of 7 spots of blood collected from infants on filter paper. An incidence of 1 hypothyroid infant per 7,000 infants has been found. In none of the infants was hypothyroidism suspected clinically in less than 6 to 8 weeks after laboratory diagnosis was made. Cost of early detection was approximately $4,000 (U.S. currency) per affected infant, much less than the annual cost for institutional care of an MR child. Further studies are recommended to determine other approaches to mass screening, the effects of early therapy of congenital hypothyroidism on the central nervous system, and possible approaches to intrauterine diagnosis and therapy. (23 refs.)

274 **DUSSAULT, JEAN H.; COULOMBE, PIERRE; LABERGE, CLAUDE; GUYDA, HARVEY; LETARTE, JACQUES; & KHOURY, KHALIL.** Preliminary report on a mass screening program for neonatal hypothyroidism. *Journal of Pediatrics*, 86(5):670-674, 1975.

Every newborn in the province of Quebec is now being screened for neonatal hypothyroidism with a recently developed immunoassay that can measure thyroxine rapidly and accurately in the eluate of 40μl of dried blood spotted on filter paper at the fifth day of life. The completely automated procedure is part of a routine screening program for metabolic diseases and uses samples received by the Central Laboratory of the Quebec Network for Genetic Medicine and its follow-up facilities. Three newborn infants with abnormally low thyroxine-binding globulin and 7 hypothyroid infants have been identified in the 47,000 measurements taken to date. Findings indicate that the frequency of congenital hypothyroidism is about 1 in 7,000 births. The screening method, which allows treatment to be instituted by age 30 days, has resulted in an acceptable percentage of false positive measurements and no known false negatives. (22 refs.)

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275 **WADLINGTON, WILLIAM B.; KILROY, ANTHONY; ANDO, TOSHIYUKI; SWEETMAN, LAWRENCE; & *NYHAN, WILLIAM L.** Hyperglycinemia and propionyl CoA carboxylase deficiency and episodic severe illness without consistent ketosis. *Journal of Pediatrics*, 86(5):707-712, 1975.

The case of a 7-month-old male indicates that proprionyl CoA carboxylase deficiency may present with hyperglycinemia and overwhelming illness which results in death, although ketonuria is not demonstrated. The patient exhibited many manifestations of ketotic hyperglycinemia syndrome, including vomiting, anorexia, weight loss, weakness, hypotonia, seizures, and propionic acidemia. Ketonuria, however, was not observed, and ketone was not found in the urine during 2 episodes of acute illness (the latter one fatal).

Body fluids contained large amounts of pyrrolidone carboxylic acid. It is important to distinguish between ketotic hyperglycinemia and nonketotic hyperglycinemia, because patients with the former syndrome are treatable. There is no effective treatment for nonketotic hyperglycinemia. (26 refs.)

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276 **ISENBERG, J. NEVIN; & SHARP, HARVEY L.** Aspartylglucosaminuria: psychomotor retardation masquerading as a mucopolysaccharidosis. *Journal of Pediatrics*, 86(5):713-717, 1975.

The clinical course of a 5-year-old girl with aspartylglucosaminuria, a metabolic defect in glycoprotein catabolism, is presented. The patient, a coarsely featured child with visceromegaly and vacuolated lymphocytes, is the first case of the disorder diagnosed in the United States. Diagnosis is difficult because the defect can be clinically confused with other storage diseases such as the mucopolysaccharidoses and mucolipidoses. Routine laboratory screening methods are not useful, but a thin-layer chromatography method for screening urine is recommended when the diagnosis is suspected. In spite of problems with poor attention, tantrums, and inappropriate behavior as well as frequent absences, the patient achieved developmental gains in a therapeutic preschool. (18 refs.)

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277 **DANKS, DAVID M.** Steely hair, mottled mice and copper metabolism. *New England Journal of Medicine*, 293(22):1147-1149, 1975. (Editorial)

Observations are presented on 3 inherited disorders of copper metabolism -- Wilson's disease, Menkes' steely-hair syndrome, and the mottled mice syndrome. The precise basic defect of copper metabolism in Wilson's disease is still unknown. The fault is thought to lie in some single process involved in both the production of ceruloplasmin and the excretion of copper in the bile. The progressive cerebral degeneration, pili torti, arterial degeneration, and bone changes characteristic of Menkes' steely-hair syndrome can be explained by faults in copper-dependent enzymes; a similar combination of abnormalities has been described in the mottled mice syndrome. The therapeutic effects of parenteral copper administration in these syndromes have been disappointing; although ceruloplasmin levels can be restored to normal and liver copper replenished, no improvement of symptoms has been noted in patients who were over 3 months old at start of treatment. These poor results raise the possibility that copper present in the serum does not gain access to some intracellular sites of action. It is theorized that depigmented patches of skin in these syndromes are clones of cells in which the x chromosome carrying the normal allele is inactivated, leaving only the mutant gene active. A similar process might explain the occasional occurrence of pili torti in human heterozygotes, suggesting that the process involved in disulfide linkage in keratin is also inaccessible to the copper present in the serum. Findings on the behavior of fibroblastic cells and the copper content of gut mucosa are discussed.

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278 **DOREY, LEONARD G.; & GELL, JAMES W.** Primary hyperparathyroidism during the third trimester of pregnancy. *Journal of Obstetrics and Gynecology*, 45(4):469-472, 1975.

Although primary hyperparathyoridism during pregnancy has been reported in 36 cases, a new case is the first reported to be surgically treated during the third trimester of pregnancy. Diagnosis was made with the aid of radioimmunoassay of serum parathyroid hormone (PTH). Indications for surgery were the patient's progressive symptomatology, increasing serum calcium levels, and a desire to avert neonatal tetany. Hyperparathyroidism has a high association with progressive renal insufficiency, renal calculi, hypertension, and bone disease. There is an increased incidence of stillborns, premature labor, and neonatal tetany, and the possibility of maternal death as a result of hyperparathyroid crisis. Surgery was performed in

the 37th week of gestation. At 39 weeks gestation, the patient delivered a normal female infant (5 lb 15 oz). More data are needed to assess accurately the benefits and risks of neck exploration in pregnant hyperparathyroid women. (20 refs.)

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279 **ZARIF, M.; VIDYASAGAR, D.; & PILDES, R. S.** Hyperglycemia in low-birth-weight infants (LBWI). Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):973, 1975. (Abstract)

The metabolic responses of 75 low birth weight infant (LBWI) "routine nursery regimens" were studied prospectively for the first 5 days of life. There was a significant incidence of hyperglycemia in infants who received apparently routine quantities of intravenous glucose. Hyperglycemia was seen primarily in the smaller, more premature, sicker Ss and did not appear to be responsible for the increased mortality (hyperglycemia was found in 18/24 Ss who died and in 9/51 Ss who lived), since the incidence of intracranial hemorrhage was similar in both normo- and hyperglycemic infants. An increased catecholamine response to stress may have contributed to the development of hyperglycemia.

280 **SHAPIRA, E.; & NADLER, H. L.** Antigenic properties of the arylsulfatase B mutant in Maroteaux-Lamy syndrome. Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):979, 1975. (Abstract)

A monospecific antiserum against normal human liver arylsulfatase B (ASB) was prepared in order to determine if a normal protein enzyme exists in decreased concentrations or if a mutant enzyme with decreased specific activity is present in mucopolysaccharidosis type VI-Maroteaux-Lamy syndrome (MLS). This antiserum gave a precipitin line with normal ASB which did not cross-react with arylsulfatase A (ASA) or any other liver or serum protein. ASB preparations of normal human fibroblasts and MLS fibroblasts yielded a precipitin line of identity when examined with ASB antisera. Determination of the residual ASB activity of the precipitin line revealed enzymatic activity only in the normal liver and normal fibroblast bands. The data indicated the presence of a mutant protein enzyme in MLS which is antigenically indistinguishable from ASB but contains reduced enzymatic activity.

281 **MONNENS, L.; GABREELS, F.; & WILLEMS, J.** A metabolic myopathy associated with chronic lactic acidemia, growth failure, and nerve deafness. *Journal of Pediatrics*, 86(6):983, 1975. (Letter)

A girl was observed with the same hereditary metabolic defect previously associated with chronic lactic acidemia, growth failure, and nerve deafness in 2 sisters. Excretion of alanine in urine was increased, and the serum lactate level and lactate-pyruvate ratio were elevated; the serum pyruvate level in the resting basal state was slightly raised. No metabolic acidosis was present. The patient's mother, mother's sister, and grandmother had a neurosensory hearing loss, but no symptoms of myopathy. A son of the mother's sister had the same mitochondrial myopathy as the patient. The girl showed decreased activity of pyruvate dehydrogenase in leukocytes, defective metabolism of pyruvate-2-^{14}C, and a deficiency of cytochrome c oxidase in muscle tissue. (3 refs.)

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282 **CHESNEY, RUSSELL W.; & HARRISON, HAROLD E.** Fanconi syndrome following bowel surgery and hepatitis reversed by 25-hydroxycholecalciferol. *Journal of Pediatrics*, 86(6):857-861, 1975.

The Fanconi syndrome developed in a premature male infant following peritonitis, bowel necrosis, 6 surgical procedures, 3 periods of parenteral alimentation, and hepatitis. The patient presented with osteoporosis and, later, rickets, despite daily doses of 1,332 (33μg) to 2,000 (50μg) IU of vitamin D_2. He also had malabsorption and hepatic dysfunction, and glycosuria, phosphaturia, generalized aminoaciduria, and a decreased urine citrate concentration were present with hypokale-

mia, hypophosphatemia, and hypouricemia. When 25-hydroxycholecalciferol (25-OHCC) was administered at 240μg/day, aminoaciduria disappeared and bone healing occurred, serum phosphate rose from 1.6mg/dl to 6.5mg/dl, and urine phosphate clearance fell from 83 percent to 2 percent of creatinine clearance. When 25-OHCC was stopped at age 176 days, the features of the proximal tubulopathy reappeared despite vitamin D_2 therapy. 25-OHCC therapy was reintroduced at 40μg/day at age 197 days, and symptoms were reversed again. The most plausible explanation for the Fanconi syndrome was vitamin D deficiency with secondary hyperparathyroidism. (31 refs.)

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283 **STEVENS, RICHARD; CROSS, HAROLD E.; & *MORROW, GRANT, III.** Histidinemia with features of the Marfan syndrome. *Journal of Pediatrics*, 86(6):907-910, 1975.

A 17-year-old white male and his 18-year-old brother presented with clinical features of the Marfan syndrome as well as histidinemia resulting from abnormal histidase activity. Histidinemia was diagnosed by quantitation of amino acids and by indirect measurement of histidase activity. While the Marfan syndrome could not be diagnosed with absolute certainty, especially in the absence of ectopia lentis, its presence was strongly suggested by physical characteristics of the patients consistent with the disease (arachnodactyly and a pectus excavatum deformity in both patients, and a positive thumb sign in the 17-year-old), in combination with slit-lamp and echocardiographic findings. Arachnodactyly and a marked pectus excavatum deformity were present in the father; the paternal grandfather also had arachnodactyly. The father had no ocular stigmata but was found to have a dilated aortic root. Chance is probably the most likely cause of 2 inherited diseases occurring in an individual. However, there may be an association between histidinemia and the Marfan syndrome, even though the former is usually an autosomal recessive disorder, and the latter, an autosomal dominant one. (8 refs.)

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284 **KAUFMAN, SEYMOUR; HOLTZMAN, NEIL A.; MILSTIEN, SHELDON; BUTLER, IAN J.; & KRUMHOLZ, ALLAN.** Phenylketonuria due to a deficiency of dihydropteridine reductase. *New England Journal of Medicine*, 293(16):785-790, 1975.

Studies of an infant diagnosed with classic phenylketonuria (PKU) (serum levels of phenylalanine of 53.3mg/100ml and an abnormal phenylalanine tolerance test) in whom seizures and MR became apparent at age 7 months, despite excellent control of blood phenylalanine concentration from the third week of life, revealed a marked deficiency of dihydropteridine reductase in liver and brain and in fibroblasts cultivated from the skin. The patient's level of hepatic phenylalanine hydroxylase also seemed low, being about 20 percent of the average value for a group of adult controls. Since dihydropteridine reductase is also essential for the biosynthesis of dopamine, norepinephrine, and serotonin, disturbed neurotransmitter function may have caused the patient's neurologic deterioration. The treatment of a patient lacking dihydropteridine reductase may differ from that used in classic PKU. Therefore, an assay of dihydropteridine reductase in cultured skin fibroblasts may be advisable in the original diagnosis of PKU, as well as in any diagnosed case of the disease in which developmental arrest and seizures occur after the initiation of a phenylalanine restricted diet. (24 refs.)

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285 **KOOH, SANG WHAY: FRASER, DONALD; DELUCA, HECTOR F.; HOLICK, MICHAEL F.; BELSEY, RICHARD E.; CLARK, MARY B.; & MURRAY, TIMOTHY M.** Treatment of hypoparathyroidism and pseudohypoparathyroidism with metabolites of vitamin D: evidence for impaired conversion of 25-hydroxyvitamin D to 1α,25-dihydroxyvitamin D. *New England Journal of Medicine*, 293(17):840-844, 1975.

The hypothesis that a defect in synthesis of 1α,25-dihydroxyvitamin D_3 (1α,25-$[OH]_2D_3$), the principal active metabolite of vitamin D, exists

in hypoparathyroidism and pseudohypoparathyroidism was tested in 2 children with the former condition and 1 with the latter. It was demonstrated that minute doses of 1α,25-$(OH)_2D_3$ (0.04-0.08 μg/kg of body weight per day) can raise the serum calcium concentration rapidly to normal and increase intestinal calcium absorption. To achieve the same level of serum calcium with 25-hydroxyvitamin D_3 (25-OH D_3) required between 3 and 4 μg of this metabolite per kilogram of body weight per day, approximately 100 times the dose of 1α,25-$(OH)_2D_3$. However, the dose of 25-OH D_3 required to initiate biochemical healing in 2 infants with vitamin D deficiency, a condition in which optimal metabolism of vitamin D would be expected, was only 3 times that of 1α25-$(OH)_2D_3$. The data suggest that renal conversion of 25-OH D_3 to 1α,25-$(OH)_2D_3$ is impaired in both hypoparathyroidism and pseudohypoparathyroidism. Direct evidence for the metabolic block would be the demonstration of inhibited renal 25-hydroxyvitamin D_3-1-hydroxylase activity by enzyme assay in these 2 conditions, a measurement that is not yet practical. (30 refs.)

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286 **KAUFMAN, S.; MILSTIEN, S.; & BARTHOLOME, K.** New forms of phenylketonuria. *Lancet*, 2(7937):708, 1975. (Letter)

The assumption that children with a new form of phenylketonuria (PKU) characterized by progressive neurologic deterioration, even when serum-phenylalanine levels are controlled by restriction of phenylalanine uptake, lack dihydropteridine reductase or another component of the hydroxylating system is wrong. All the components of the phenylalanine-hydroxylase system were assayed in a liver biopsy sample from 1 of these children, and all were present within the normal range. The finding of normal hepatic levels of tetrahydrobiopterin in this child indicates that he cannot have a functional deficiency of the reductase in this tissue. The results also indicate that, if the condition in this patient was caused by a genetic defect, the primary defect must be one that affects an enzyme-catalyzed reaction other than phenylalanine hydroxylation; the effect on the latter reaction is probably indirect. The findings show that this new form of PKU is a heterogeneous condition that is not always associated with a deficiency of dihydropteridine reductase. At this point, any suggestion concerning treatment of the condition could be dangerously premature. (4 refs.)

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287 **ERBE, RICHARD W.** Inborn errors of folate metabolism (first of two parts). *New England Journal of Medicine*, 293(15):753-757, 1975.

The features and implications of the individual folate inborn errors described to date are considered, and the characteristics of this group of disorders are delineated because of the increasing likelihood that they may result in serious neurologic impairment. Folic acid, an essential vitamin in man, and its folates are absorbed principally in the upper jejunum; consequently, diseases that impair the function of the upper two-thirds of the small intestine may result in folate deficiency. Mammals do not synthesize folate de novo, but they possess a large number of enzymes that metabolize preformed folates. The 15 major folate pathway enzymes and the reactions they catalyze are detailed. Enzymes in the first 6 reactions are integral parts of other metabolic pathways as well, so that congenital defects in these enzymes could be viewed as inborn errors of folate metabolism or of the related pathways. The activities of most folate enzymes are higher in neoplastic and embryonic tissue than in mature normal tissues. The presence of at least 9 of the folate-pathway enzymes in extracts of human skin fibroblasts, peripheral blood lymphoblasts, and amniotic fluid cells grown in culture provides a means to study normal and abnormal folate metabolism in experimental conditions. Studies have demonstrated the relationships between folate and vitamin B_{12} and suggest that vitamin B_{12} deficiency alters DNA synthesis indirectly through its effects on folate metabolism. Folate deficiency and vitamin B_{12} deficiency have common clinical and laboratory characteristics, but folate is concentrated in cerebrospinal fluid to a level 3 times that of serum, while vitamin B_{12} is excluded. (46 refs.)

288 **GARNICKA, ADOLFO D.; & FLETCHER, STEVEN R.** Parenteral copper in Menkes' kinky-hair syndrome. *Lancet*, 2(7936):659-660, 1976. (Letter)

The pattern of urinary copper excretion in a 4-month-old patient with Menkes' syndrome treated with twice-daily infusions of 44μg elemental copper as cupric acetate solution is described. Two weeks after the last infusion, urinary copper was 14μg/24th (3.5μg/kg body weight 24 hr.). Normal urinary copper has been determined as 0.07-0.27μg/kg body weight 24/hr. Thus, urinary copper excretion was excessive even in the face of copper infusion. This pattern of urinary copper excretion is consistent with decreased hepatic copper uptake and might reflect the same transport abnormality seen in the small intestine. This deficiency in uptake and utilization might be generalized, manifested clinically as a lack of neurological improvement after parenteral copper. Retinal electrophysiological studies showed progressive decrease in electroretinogram amplitude and visual evoked response, which did not improve after copper infusion. Results suggest that there is no conclusive evidence supporting the efficacy of parenteral copper in Menkes' syndrome. Transient aminoaciduria during the infusion period further suggests that copper may even be toxic to other tissues.

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289 **LINDSTEDT, G.; IVERSEN, K.; & OSKARSSON, M.** Screening for congenital hypothyroidism. *Lancet*, 2(7936):660-661, 1975. (Letter)

Two cases of congenital hypothyroidism in which analysis of serum thyrotropin and thyroxine, x-ray examination of ossification centers in the distal femoral epiphysis, and serum-triiodothyronine assay were performed are reported. Both children had reduced reserve capacity in the thyroid, but x-ray examination of bone centers in the distal femur failed to disclose thyroid insufficiency, and analysis of serum thyroxine and triiodothyronine gave definitely pathological values during the first week in only one child (thyrotropin concentration was abnormal in both cases). It is uncertain whether laboratory investigation in the neonatal period can disclose late-appearing thyroid insufficiency due to dysgenesis or enzyme defect. (9 refs.)

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290 **STARZL, THOMAS E.; & PUTNAM, CHARLES W.** Portal diversion. Treatment for glycogen storage disease and hyperlipemia. *Journal of the American Medical Association*, 233(9):955-957, 1975.

In spite of potential postoperative risks, end-to-side portacaval shunting has been of value in favorably altering the course of some patients with 2 inborn errors of metabolism—glycogen storage disease and type II hyperlipoproteinemia. Accelerated growth and other palliative effects have been noted in postoperative patients with glycogen storage disease. Efforts to reduce the serum cholesterol and lipoprotein levels in children with hyperlipemia suggest that portacaval shunting should be restricted to the homozygous type II variety and undertaken only if medical management fails. Although animal studies have implicated hepatic encephalopathy as a potential complication, follow-up studies suggest that humans are resistant to the toxic effects of portal diversion. A conservative and discriminating attitude toward portacaval shunting is recommended in view of 'tradeoffs" of liver perfusion in return for metabolic improvements. (17 refs.)

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291 **BERRY, HELEN K.; PONCET, INNA B.; SUTHERLAND, BETTY S.; & BURKETT, ROBERT.** Serum amino acid concentrations during pregnancy of women heterozygous for phenylketonuria. *Biology of the Neonate*, 26:102-108, 1975.

The results of analyses of serum amino acids in 4 women heterozygous for phenylketonuria (PKU) during 5 pregnancies are reported. The mean values for maternal amino acids were, with the exception of phenylalanine, in the range of those reported for nonpregnant controls. Concentrations

of phenylalanine in blood specimens were slightly increased, but the concentration differences between normal controls, nonpregnant heterozygous, and pregnant heterozygous subjects were small. Phenylalanine concentrations in cord blood were in the same range as in maternal blood at time of delivery. It was concluded that there is a great deal of individual variability in free amino acid concentrations in blood during pregnancy and that the heterozygous carrier could not be detected by routine testing of prenatal sera using usual screening procedures (inhibition assay or fluorimetric measurement of phenylalanine). Further, there is no evidence that phenylalanine levels in the heterozygous carrier might rise during pregnancy sufficiently to harm the infant *in utero*.

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292 **BERRY, HELEN K.; BUTCHER, RICHARD E.; KAZMAIER, KATHY J.; & PONCET, INNA B.** Biochemical effects of induced phenylketonuria in rats. *Biology of the Neonate*, 26:88-101, 1975.

The biochemical aspects of phenylketonuria (PKU) were studied using an animal model. PKU was induced in rats by use of a combination of 3 percent excess phenylalanine and 0.12 percent *p*-chlorophenylalanine added to the standard laboratory diet. Increased concentrations of phenylalanine and increased ratio of phenylalanine to tyrosine were demonstrated in blood from pregnant rats fed the experimental PKU diet from day 10 to 20 of pregnancy, in fetal blood and amniotic fluid of fetal animals from mothers fed the PKU diet, and in blood of rats fed the PKU diet for 28-30 days beginning at 20-21 days of age. Phenylpyruvic acid excretion ranged from 40 to 100mg/100ml (10-24mg/day) in specimens from rats fed the PKU diet. Phenylpyruvic acid was not detected in urine specimens from rats in any other diet group. Excretions of phenylalanine were in the range of 0.2-0.4mg/day in control groups compared to 3.5mg/day in PKU animals. Orthohydroxyphenylacetic acid was present in urine specimens from PKU animals but not from animals fed either *p*-chlorophenylanine or phenylalanine alone. Reduced serotonin concentrations were found in brains of rats fed *p*-chlorophenylalanine, either alone or in combination with excess phenylalanine in the PKU diet. These data suggest that the biochemical and behavioral aspects of experimentally induced PKU more closely resemble those of the human disease than models not using the enzyme inhibitor p-chlorophenylalanine. (18 refs.)

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293 **HORN, NINA; MIKKELSEN, MARGARETA; HEYDORN, K.; DAMSGAARD, ELSE; & TYGSTRUP, INGE.** Copper and steely hair. *Lancet*, 1(7918):1236, 1975. (Letter)

Results from an investigation of the copper distribution in a male fetus suspected of Menkes' steely-hair disease are reported. The mother had previously given birth to 2 boys with this disease. When she became pregnant again and prenatal diagnosis revealed a male karyotype, the pregnancy was terminated. Necropsy of the fetus showed neither macroscopical nor microscopical alterations. The concentration of copper in various organs from this fetus and from 4 normal fetuses was determined by neutron activation analysis with radiochemical separation. The content of copper in the kidney, spleen, pancreas, and placenta of the fetus was significantly higher than in the controls. The liver was the only tissue containing less copper than the controls. These findings make the existence of a defective placental transport of copper unlikely, but confirm the supposition of inadequate storage of the metal in the liver. (2 refs.)

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294 **SMYTH, DIANE P. L.; LAKE, B. D.; MACDERMOTT, J.; & WILSON, J.** Inborn error of carnitine metabolism ("carnitine deficiency") in man. *Lancet*, 1(7917):1198-1199, 1975. (Letter)

A case report of a boy with an inborn error of carnitine metabolism, the first recognized in the United Kingdom, is presented. Carnitine (γ-trimethyl-amino-β-hydroxybutyrate) is intimately concerned in the transportation of long-chain fatty acids into mitochondria, and it is believed that its depletion causes intracellular lipid accumulation. The boy, now aged 11 years, has calcification of the basal ganglia, raised cerebrospinal-fluid protein concentration, and high-tone hearing loss, in addition to other reported features, and is thus unique. Infancy and childhood were normal, but at the age of 5.5 years, he complained of vomiting and exertional dyspnea. These symptoms have increased, so that now he can walk only 30 yards because of breathlessness. He has not grown since approximately 6 years. He had a generalized fit at 9 years. An electroencephalogram was mildly abnormal, and an electromyogram showed slight myopathic changes. Lipid droplets were visible in many neutrophils in the peripheral blood. Muscle biopsy revealed carnitine concentration to be 2.61μmol/g dry weight compared with control values of 11.6, 13.4, and 15.7μmol/g in normal muscle. A clinical trial of a low-fat diet (20g) is now in progress, and so far, after 8 weeks, he has gained weight with cessation of nausea and has become more active. A trial of dl-carnitine, for which some therapeutic success has been claimed, is also planned.

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295 **WALSHE, J. M.** Missed Wilson's disease. *Lancet*, 2(7931):405, 1975. (Letter)

During the course of analysis of 92 families with the Wilson's disease gene, it was found that in many affected sibships it is necessary for 1 child, or occasionally 2 children, to die before the diagnosis is established. In no less than 24 of these 92 families (approximating closely to the 25 percent which might be expected with a recessive gene) more than 1 child was involved. In 9 of these 25 families with 2 or more cases, the diagnosis was made relatively early in the illness of the first sibling; thus the second affected child could be identified on screening and given the benefit of prophylactic treatment. Although the incidence of occurrence of Wilson's disease has been estimated to be 1 in 1,000,000, 9 cases have been personally seen in the first 7 months of 1975. The tragic loss of an elder sibling could be avoided if doctors handling schoolchildren who present with either jaundice or neurological or personality difficulties, however, vague, would bear this diagnosis in mind and arrange for a suitable screening procedure to be undertaken at an experienced laboratory.

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296 **FISHMAN, PETER H.; MAX, STEPHEN R.; TALLMAN, JOHN F.; BRADY, ROSCOE O.; MACLAREN, NOEL K.; & CORNBLATH, MARVIN.** Deficient ganglioside biosynthesis: a novel sphingolipidosis. *Science*, 187(4171):68-70, 1975.

The accumulation of GM_3 (hematoside) and the virtual absence of higher ganglioside homologs in the brain and liver of a patient with a presumed sphingolipidosis is reported. The patient's G_{M3} accumulation was not due to the defective catabolic reaction G_{M3} plus H_2O yields CDH plus NAN, but was the result of a deficient ganglioside biosynthetic enzyme, UDP-GALNA$_c$:G_{M3} *N*-acetylgalactosaminyltransferase, which catalzyes the following reaction: G_{M3} plus UDP-GALNAc plus G_{M3} plus UDP. Diagnosis of G_{M3} gangliosidosis was established by an accumulation of G_{M3} and G_{D3} in postmortem samples of brain and liver. Significant G_{M3} sialidase activity was shown in homogenates of frozen brain in optimum conditions for G_{M3} hydrolysis. Measurement of glycosyltransferase involved in ganglioside biosynthesis indicated that the abnormality was due to a deficiency in N-acetylgalactosaminyltransferase activity and not to the presence of an enzyme inhibitor or absence of an enzyme activator. The name anabolic sphingolipidosis-type G_{M3} is proposed to describe this new disease. (15 refs.)

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297 **PASCAL, T. A ; GAULL, G. E.; BERATIN, N. G.; GILLAM, B. M.; TALLAN, H. H.; & HIRSCHHORN, K.** Vitamin B_6-responsive and -unresponsive cystathioninuria: two variant molecular forms. *Science*, 190(4220):1209-1211, 1975.

Definitive evidence is presented that in B_6-responsive cystathioninuria there is an increase in the requirement for vitamin B_6, that the coenzyme acts directly by stimulation of the the cystathionase protein, and that B_6-responsive and B_6-unresponsive cystathionase deficiencies arise from different mutations. Cystathionase was assayed in lymphoid cell lysates. Identification of a catalytically inactive, cross-reacting cystathionase protein in lymphoid cells from a patient with B_6-responsive cystathioninuria and the lack of cross-reacting material in the cells of a B_6-unresponsive patient indicated that the 2 forms of primary cystathioninuria arise from different mutations that cause different molecular defects. The B_6 responsive form results from the synthesis of an aberrant enzyme protein exhibiting altered interaction with the coenzyme, resulting in an inherited increase in the requirement for vitamin B_6. The B_6-unresponsive form of cystathioninuria results from the complete absence of cystathionase or its reduction to a level that cannot be detected by the enzymatic or the immunological methods. There may also be present an enzyme protein so greatly altered as to lose both cystathionase activity and the determinants necessary for recognition by specific antibody. (19 refs.)

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298 **FARRELL, DONALD F.; CLARK, ARTHUR F.; SCOTT, C. RONALD; & WENNBERG, RICHARD P.** Absence of pyruvate decarboxylase activity in man: a cause of congenital lactic acidosis. *Science*, 187(4181):1082-1084, 1975.

A complete deficiency in the pyruvate dehydrogenase system activity contributed to the death of a 6-month-old infant with congenital lactic acidosis. The enzymatic block would be isolated to the first component, pyruvate decarboxylase (E_1) of the pyruvate dehydrogenase complex. This enzymatic deficiency allowed a demonstration of an "intercomplex" exchange of the components of the mammalian pyruvate dehydrogenase system and indicated that the first component is normally present in an apparent excess. (14 refs.) (Author abstract)

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299 **WENGER, DAVID A.; SATTLER, MARTHA; CLARK, CAMERON; TANAKA, HARUMI; SUZUKI, KUNIHIKO; & DAWSON, GLYN.** Lactosyl ceramidosis: normal activity for two lactosyl ceramide β-galactosidases. *Science*, 188(4195):1310-1312, 1975.

In light of recent findings demonstrating the presence of enzymes in humans that can degrade lactosyl ceramide, the lactosylceramide beta-galactosidase activity was reevaluated in fibroblasts of a patient with so-called lactosyl ceramidosis. Two recently developed assay methods that appear to measure 2 genetically distinct enzymes that can degrade this substrate were used. No deficiency of either of the lactosyl ceramide-cleaving enzymes was observed. All enzymes examined were within normal range, except for sphingomyelinase activity, which was only one-eighth of normal. (15 refs.)

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300 **DEAN, MICHEL F.; BENSON, PHILIP F.; & MUIR, HELEN.** The effect of dextran infusions on glycosaminoglycan excretion in the Sanfilippo syndrome. *Developmental Medicine and Child Neurology*, 17(1):47-51, 1975.

Results of analysis of the urinary glycosaminoglycans excreted after treatment by dextran infusion are reported for a 17-year-old patient with Sanfilippo syndrome. An increased excretion of uronic acid resulted from infusion of a dextran solution of equivalent osmolality to plasma. However, the increase was smaller than that obtained previously when the same patient was infused with an equal amount of plasma. In contrast to changes noted after plasma infusion, there were no significant changes in the ratio of larger to smaller glycosaminoglycan fragments or in the sulfate-uronic acid ratios. Although plasma infusion therapy was more effective in inducing

increased mobilization of pathological glycosaminoglycans than was infusion of dextran alone in this case, treatment of the mucopolysaccharidoses by plasma can at best provide only a temporary alleviation of the problem due to the short half-life of the necessary corrective factors. (15 refs.)

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301 **REEM, GABRIELLE H.** Phosphoribosylpyrophosphate overproduction, a new metabolic abnormality in the Lesch Nyhan syndrome. *Science*, 190(4219):1098-1099, 1975.

Evidence that phosphoribosylpyrophosphate (PP-rib-P) synthetase activity was significantly elevated in cultured cells of 2 patients with the Lesch-Nyhan syndrome and in a clonal lymphocyte cell line selected for hypoxanthine guanine phosphoribosyltransferase (HGPRT) deficiency is presented. PP-rib-P synthetase activity was measured by determining $^{14}CO_2$ release from [^{14}C-carboxyl]-orotidylic acid. PP-rib-P content, PP-rib-P synthetase activity, and PP-rib-P accumulation were determined on enzyme extracts prepared from lymphocytes in the logarithmic phase of growth; studies were carried out on freshly harvested cells. PP-rib-P synthetase activity was strikingly increased in all HGPRT deficient cells; enzyme activity in mutant cell lines exceeded that of the control cells 3- to 10-fold. Increase in PP-rib-P synthetase activity observed in Lesch-Nyhan cells could result in their abnormally high cellular PP-rib-P content. This newly detected abnormality may play an important role in the genesis of purine overproduction in the Lesch-Nyhan syndrome. (15 refs.)

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302 **NYHAN, WILLIAM L.** Prenatal treatment of methylmalonic acidemia. *New England Journal of Medicine*, 293(7):353-354, 1975. (Editorial)

Comments are presented on a report of prenatal treatment of a patient with methylmalonic acidemia, a genetic disorder resulting from an error of the metabolism of isoleucine and other branched-chain amino acids. Although massive ketosis is a clue to the disorder, most patients die early in life without a diagnosis. Prenatal diagnosis was made and located to deficient synthesis of deoxyadenosylcobalamin in cells obtained by amniocentesis at 19 weeks. Treatment of the mother with large doses of vitamin B_{12} effectively reduced maternal excretion of methylmalonic acid. The baby, born at 41 weeks, had an uneventful neonatal course. Administration of vitamin B_{12} to the baby at 16 weeks effectively reduced levels of the vitamin stored before birth as well as rising concentrations of methylanate. The baby was successfully maintained on a mild restriction of dietary protein and occasional administration of vitamin B_{12}. Prenatal therapy for this disorder could be a model system for evaluating the efficiency of prenatal treatment for other genetic diseases. (3 refs.)

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303 **GOODMAN, STEPHEN I.; MARKEY, SANFORD P.; MOE, PAUL G.; MILES, BARBARA S.; & TENG, CECILIA C.** Glutaric aciduria; a "new" disorder of amino acid metabolism. *Biochemical Medicine*, 12(1):12-21, 1975.

Studies on 2 siblings with a distinctive neurodegenerative disorder and massive glutaric aciduria, an abnormality that has not been documented previously in man, are reported. Results of the studies strongly suggest that the glutaric aciduria in these patients is due to generalized glutaryl-CoA dehydrogenase deficiency. Identification of glutaric acid in the blood, urine, and cerebrospinal fluid of these children was made on the basis of gas chromatography and mass spectrometry of the trimethylsilyl derivatives of the unknown and authentic compounds. The presence of glutaric acidemia and aciduria, the increase in glutaric acid excretion which followed administration of lysine but not valine, and the decrease in glutaric aciduria which followed a reduction in protein intake are all compatible with a block in lysine metabolism distal to the formation of glutaryl-coenzyme A, the excreted glutarate deriving from hydrolysis of the CoA derivative. An obvious possibility for the location of such a block is glutaryl-CoA dehydrogenase, the enzyme which catalyzes the

conversion of glutaryl-CoA to glutaronyl-CoA and perhaps to crotonyl-CoA. The association of this biochemical abnormality with a highly unusual neurodegenerative disorder suggests that the 2 are related by cause and effect. Speculations are presented on the potential basis of such an association. (30 refs.)

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304 **ROWE, V. D.; FALES, H. M.; PISANO, J. J.; ANDERSEN, A. E.; & GUROFF, G.** Urinary metabolites of phenylalanine in the preweanling rat treated with p-chlorophenylalanine and phenylalanine. *Biochemical Medicine*, 12(2):123-136, 1975.

The major acidic metabolites of phenylalanine appearing in the urine of preweanling rats after injection of uniformly labeled ^{14}C-L-phenylalanine were characterized by paper chromatography, by gas chromatography with trapping, and by mass spectrometer analysis of the metabolites separated by the gas chromatography. Very small amounts of phenyllactic acid and various phenolic acids were found. The major metabolites were hippuric acid and phenaceturic acid. Phenylalanine loading by injection of 340mg/kg increased the metabolite excretion but did not alter the pattern. Pretreatment with *p*CP (60mg/kg) did not alter the pattern of metabolites found and only slightly altered their quantitative excretion. Similar results were found upon chronic pretreatment with a combination of *p*CP (60mgs/kg) and phenylalanine (340/kg). On the other hand, when preweanling rats were pretreated with *p*CP and then given a larger dose of phenylalanine (4g/kg), the classical unconjugated acidic products of phenylalanine appeared in the urine, the 3 major ones being phenyllactic acid, phenylpyruvic acid, and phenylacetic acid. The only metabolite of *p*-chlorophenylalanine found was *p*-chlorophenaceturic acid. These data indicate that the permanent neurologic damage incurred by the preweanling rat treated with pCP-plus-phenylalanine during the 21-day postnatal period is not associated with the accumulation of classical aromatic acidic metabolites. (41 refs.) (Author abstract)

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305 **GRAHL-NIELSEN, OTTO; & MOVIK, BIRGER.** A novel method for the gas chromatographic determination of phenylalanine in serum. *Biochemical Medicine*, 12:143-148, 1975.

A novel method for the quantitative gas chromatographic analysis of phenylalanine in serum, based on the conversion of phenylalanine to the volatile derivative 2-trifluoromethyl-4-benzyl-3-oxazolin-5-one, is presented. After deproteinizing and evaporation to dryness of the serum sample, the phenylalanine is derivatized in one step by the action of trifluoroacetic anhydride in a closed vial at 130-140 degrees for 10 minutes. Phenylglycine is used as internal standard. (10 refs.) (Author abstract modified)

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306 **MURTHY, L. I.; & BERRY, H. K.** Phenylalanine hydroxylase activity in liver from human and subhuman primates: its probable absence in kidney. *Biochemical Medicine*, 12:392-397, 1975.

Investigations indicating phenylalanine hydroxylase activity in the liver of primates in the same range as found in human liver are reported. The level was lower than that observed in the liver of guinea pig or rat. No activity was demonstrable in kidney tissue from subhuman primates or humans. Activity in human kidney described by other investigators probably resulted from nonenzymatic hydroxylation of phenylalanine in the presence of tetrahydropteridine. These data do not support the hypothesis that an active kidney enzyme in the presence of a deficiency of the liver enzyme accounts for unexplained variants of phenylketonuria. (15 refs.) (Author abstract modified)

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307 **MATSUURA, NOBUO; ENDO, MACHIKO; OKAYASU, TAKAKO; & OKUNO, AKIMASA.** Wiedemann-Beckwith syndrome. *Lancet*, 2(7933):508, 1975. (Letter)

The first assessment of hypothalamic-pituitary function by LHRH and TRH is reported for 3 familial cases of Wiedemann-Beckwith syndrome (WBS). The pathogenesis of WBS is obscure; Wiedemann suggested that it should be classed as a congenital diencephalic syndrome. The 3 affected children were injected intravenously with LHRH and TRH, and blood samples were taken for leutinizing hormone (LH), follicle stimulating hormone (FSH), and thyroid stimulating hormone (TSH) determination by radioimmunoassay. The basal level of LH at 3 months of age was 33 mU/ml; it increased to 77 mU/ml after LHRH injection. This high LH level might be responsible for high urinary excretion of 17-ketosteroids, advanced bone age, and probably interstitial-cell hypertrophy of the testis. TSH response to TRH also exceeded the normal range at the age of 3 months. These exaggerated responses to LHRH and TRH returned to normal at the age of 16 months. These results support the suggestion by Roe that some of the endocrine abnormalities are due to hypothalamic dysfunction. (5 refs.)

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308 GAL, ANDREW E.; BRADY, ROSCOE O.; HIBBERT, SUE R.; & PENTCHEV, PETER G. A practical chromogenic procedure for the detection of homozygotes and heterozygous carrier of Niemann-Pick disease. *New England Journal of Medicine*, 293(13):632-636, 1975.

Evidence for the reliability of the chromogenic substrate 2-hexadecanoylamino-4-nitrophenylphosphorylcholine for the diagnosis of homozygotes of Niemann-Pick disease with use of extracts of tissue such as liver or cultured skin fibroblasts is presented. The detection of heterozygotes for Type A Niemann-Pick disease, the most prevalent form, is also feasible with the substrate, with extracts of cultured skin fibroblasts as source of enzyme. This compound provides for a rapid, facile method for these determinations and should eliminate the previous requirement for radiocarbon-labeled sphingomyelin for these tests, except possibly when extracts of peripheral leukocytes are used as source of sphingomyelinase. It is expected that the compound will also prove to be a useful substrate for the prenatal diagnosis of Niemann-Pick heterozygotes in utero. (11 refs.)

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309 TAYLOR, DORIS; & HOCHSTEIN, PAUL. Potential variants of phenylketonuria. *Lancet* 1(7921):1378, 1975. (Letter)

The syndrome in which children have biochemical manifestations of phenylketonuria and additional neurological problems, but have normal liver phenylalanine hydroxylase activity, is arousing interest among those studying metabolic diseases. Data are being prepared which indicate that mitochrondria have a potential role to play in the regulation of aromatic aminoacid hydroxylases. Addition of mitochondria to the soluble fraction of rat liver homogenate results in inhibition of phenyalanine-hydroxylase activity. This result is possible even in the presence of adequate oxygen, because mitochondria oxidize tetrahydropterins over cytochrome c and cytochrome oxidase, thereby diminishing the amount of active cof actor available for the hydroxylation reaction. It has been postulated that phenylketonuria patients with normal phenylalanine hydroxylase activity have a deficiency in metabolism of biopterin, possibly a diminution of dihydropterin reductase activity. Any condition which reduces the amount of active tetrahydropterin cofactor may result in a similar syndrome. (4 refs.)

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310 WEHINGER, H.; WITT, I.; LOSEL, I.; DENZ-SEIBERT, G.; & SANDER, C. Intravenous copper in Menkes' kinky-hair syndrome. *Lancet*, 1(7916):1143, 1975. (Letter)

An experience with parenteral copper in a child with Menkes' kinky-hair syndrome is reported. The diagnosis was made in 1971 at the age of 11 months, when the boy, who had developed normally for the first 3-6 months, showed progressive cerebral deterioration, which ended in severe spastic tetraplegia. At 32 months, serum-copper levels, determined for the first time, were between 38 and 50µg/100ml (bathocuproine

method, normal range 65-165). Several unsuccessful attempts were made to raise serum-copper levels by administering copper sulfate orally and subcutaneously. In February 1974, at age 3.5 years, the child was readmitted after a cerebral convulsion. Another attempt was made to increase serum copper levels by injecting 1ml of a 1mg copper solution diluted with 9ml of physiological saline once weekly intravenously over 3-5 minutes. These injections had no side effects, and serum-copper levels could be maintained between 85 and 123µg/100ml. The child's clinical state, however, did not improve. (3 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Convulsive disorders

311 **PRIMROSE, D. A.** Epiloia in twins: a problem in diagnosis and counseling. *Journal of Mental Deficiency Research*, 19(3):4:173-193, 1975.

A family is reported in which the sixth and seventh children, who are twins, have epiloia, classically characterized by epilepsy, adenoma sebaceum, and MR. Since the twins have been shown to be dizygotic, they are likely to have inherited the condition. Pigmented skin lesions in the father assumed diagnostic importance when biochemical studies of protein blood fractions suggested that he might have the condition. If the father is affected, each child has a 1:2 chance of being affected. Genetic counseling is difficult in this case, owing to the possibility that other family members may develop signs of the disease in later years; an additional difficulty is the varying degrees of severity of the condition. (8 refs.)

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312 Antiepileptic drugs linked with better performance. *Journal of the American Medical Association*, 234(10):1014, 1975.

Psychological test results in 26 epileptics receiving drugs suggest that antiepileptic agents may improve psychological performance. Test scores of 19 Ss whose seizures were controlled by drugs improved more (over pretreatment scores) than scores of 7 Ss drug-treated Ss whose seizures persisted, Ss with brain lesions but no history of seizures, and learning disabled Ss with normal EEGs. Patients whose seizures persisted performed relatively better than non-drug-treated Ss. The study was performed by Ronald Trites of the University of Ottawa, Ontario, Canada.

313 **BIALE, Y.; LEWENTHAL, H.; & BEN ADERET, H.** Congenital malformations due to anticonvulsive drugs. *Journal of Obstetrics and Gynecology*, 45(4):439-442, 1975.

A retrospective study of congenital malformations among the newborn children of 20 women who received anticonvulsive drugs (primidone, phenobarbital, or diphenylhydantoin) revealed that 9 of the 56 children were born with malformations. The most common anomalies were congenital heart disease, cleft lip, neural tube defects, and skeletal abnormalities. Multiple malformations were evident in 1 child. Four children were stillborn or died soon after delivery. Increased perinatal mortality was mainly due to congenital anomalies and spontaneous hemmorhage. Congenital malformations were attributed to interference of anticonvulsant drugs with folic metabolism. Teratogenic activity may also be influenced by hereditary and environmental factors. The importance of anticonvulsant therapy in epilepsy suggests the need for an investigation of drug effects in a larger, more heterogeneous sample. (26 refs.)

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314 **FORSTER, FRANCIS M.** Reading epilepsy, musicogenic epilepsy, and related disorders. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 8, pp. 161-177.

Reading epilepsy, the most common type of the complex form of reflex epilepsy, is really a type of language disorder in contrast with decision making, musicogenic, and probably voice-induced epilepsies, which are also among those evoked by higher functions. Methods of behavioral treatment for reflex therapy include avoidance of the evoking stimulus, alteration of the evoking stimulus, alteration of the seizure threshold, vigilance therapy, and avoidance conditioning. Some of these therapies are indicated, and others are proscribed, for the different forms of reflex epilepsy. In reflex epilepsy, especially when the evoking stimulus is in the external environment, the conditioning process is effective in the laboratory but gradually loses its efficacy when the patient returns home. Various methods of reinforcement can be utilized to prevent this regression. Affect is significant only in decision making epilepsy. Since these forms of reflex epilepsy are concerned with learning processes, behavioral or conditioning techniques can be used to alter the process. (17 refs.)

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315 **ELIAN, MARTA.** Fourteen happy puppets. Two new cases and a review. *Clinical Pediatrics*, 14(10):902-907; editor's comments, 907-908, 1975.

Two new cases of the happy puppet syndrome seen in Israel showed characteristics described in the 12 previously reported cases: special facial appearance, peculiar ataxic gait, paroxysms of laughter, MR, and epilepsy. Other features associated with the syndrome are absent speech, EEG abnormalities, and hypotonia. Still other phenomena, present in some combination in all patients, included microcephaly, a horizontal ridge, irregularly spaced and shaped teeth, protruding jaw and tongue, low set ears, a soft tissue fold on the neck, abducted fifth finger, and ocular lesions. Anticonvulsant therapy was effective in some patients. The etiology of the syndrome is unknown, and chromosome studies in all but 2Ss were normal. The editor's comments emphasize that the most unusual aspect of the syndrome is episodic, inappropriate laughter. Although all children with inappropriate laughter do not necessarily have the happy puppet syndrome, the ominous nature of the sign suggests the need for thorough neurologic evaluation. (6 refs.)

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316 **SILLANPAA, MATTI.** The significance of motor handicap in the prognosis of childhood epilepsy. *Developmental Medicine and Child Neurology.* 17(1):52-57, 1975.

An epidemiological and prognostic investigation of 244 epileptic children was designed to determine how the severity of epilepsy varies with different degrees of motor handicap. Ss were divided into 4 groups comprised of 150 children with no motor handicap; 32 with clumsiness; 51 with cerebral palsy; and 11 with severe muscular hypotonia associated with grave MR. Factors studied included age of onset of epilepsy, intelligence level, maximum frequency of seizures, grand mal status, results of medical treatment, and the interval since the last seizure. Epilepsy started earlier in patients with motor handicap than in those without, was more likely to be associated with a lower intelligence level, and was significantly associated with increase in the maximum seizure frequency and the frequency of grand mal status. Results indicated a significant correlation between severity of motor handicap and poor prognosis of epilepsy.

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317 **CHAMBERS, TIMOTHY L.** Hypernatraemia. A preventable cause of acquired brain damage. *Developmental Medicine and Child Neurology*, 17(1):91-93, 1975.

The association between high plasma sodium levels and neurological symptoms in the absence of gross central nervous system pathology is emphasized in

a review of literature dealing with hypernatremia (a plasma sodium level of greater than 150meq/l). The most common electrolyte abnormality in dehydrated infants with gastroenteritis, hypernatremia may also be a complication in respiratory and urinary infections. Clinical features in the acute stage include irritability, sleeplessness, increased muscle tone, and a high pitched cry. Convulsions often occur during the therapy period. Almost half of the infants make a complete recovery, but EEG abnormality, MR, and other neurological disorders may result. The majority of children who survive without abnormalities probably had cerebral edema only; brain damage may result from hemorrhagic encephalopathy along with edema. Incidence can probably be reduced by increasing the number of breast-fed infants, by maternal education, and by manufacturers reducing the solute load of modified cow's milk. Treatment includes slow dehydration and monitoring plasma osmolality.

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MEDICAL ASPECTS – Etiologic Groupings
Chromosomal disorders

318 **MAGRAB, PHYLLIS R.; KELLY, THADDEUS E.; JOHNSTON, ROBERT B.; BENDER, MICHAEL; KNOBELOCH, CALVIN; SMITH, KENNETH E.; LINSCHEID, THOMAS R.; BAER, MARION T.; & THOMPSON, CAROLYN R.** Down's syndrome. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 21, pp. 451-469.

The interdisciplinary team is confronted by a number of special issues related to the ongoing management of Down's syndrome. A 13-year-old female with Down's syndrome who was functioning at approximately a 6-year-old level illustrates the need for interdisciplinary reevaluations of moderately MR Down's syndrome children at critical periods. Early in life, there is a strong need for evaluation focused on diagnosis, genetic counseling, and home management. Prior to formal education, reevaluation is necessary to focus on educational planning. In puberty, vocational planning and sexual adjustment are important developmental factors that require interdisciplinary reassessment of the status of the child and the family. Emerging issues relevant to this particular case dealt with informing the parents of the initial diagnosis of Down's syndrome, developmental expectations of Down's syndrome children, educational planning for TMRs, articulation problems and language development, hearing deficits, behavioral approaches to temper tantrums, obesity and weight reduction in Down's syndrome, and sex education for MRs. (33 refs.)

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319 **GALLAGHER, R. P.; & LOWRY, R. B.** Longevity in Down's syndrome in British Columbia. *Journal of Mental Deficiency Research*, 19(3):157-163, 1975.

The Health Surveillance Registry, in operation in British Columbia since 1952, was consulted to investigate survival rate for patients with Down's syndrome. All cases with Down's syndrome born in British Columbia were selected from Registry files, and life tables were constructed using cases born from 1952 to 1971, inclusive. Cases who had no possibility of reaching the second year of successive years were withdrawn alive from the life tables at the appropriate interval. Estimates of longevity among Down's syndrome cases older than 20 were also made, based on present-day Down's syndrome incidence. Survival to age 30 for total Down's syndrome cases born within the study period was about 79 percent; the highest probability of death (10.6 percent) occurred in the first year. No statistically significant differences in survival between males and females were found at

either age 1 or age 20. Cumulative survival to 20 years for cases without congenital heart abnormalities was about 83 percent; for cases with these defects, the statistic is 57 percent. There was no statistically significant difference between males and females in this survival rate. For patients over age 20, minimal survival among those born from 1942 to 1951 was about 53 percent; for cases from 1932 to 1941, 35 percent; and for cases born from 1922 to 1931, 14 percent. (6 refs.)

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320 **WALDENMAIER, C.; SHIBATA, K.; & HIRSCH, W.** Asymmetrical, reciprocal translocation. *Journal of Mental Deficiency Research*, 19(3/4):259-266, 1975.

A 9-month-old girl with dysmorphic stigmata in whom chromosomal mosaicism was detected is described. Fifty-two percent of her lymphocytes showed a normal karyotype and 48 percent an abnormal karyotype with a dicentric translocation chromosome. On examination at 9 months the weight was 6,500g, and there was considerable mental and motor retardation and dystrophia, as well as epicanthic folds, low-set ears, absence of moulding of pinnae, a small umbilical hernia, and generalized muscle hypotonia, trunk ataxia, and adductor spasm. Catheterization confirmed pulmonary hypertension linked with persistent patent ductus arteriosus and ventricular septal defect. The translocation chromosome consisted of a chromosome 9 and a chromosome 17 with fusion of the short arms, so that the translocation chromosome had 2 centromere regions. It is possible that loss of genetic material from the short arm of chromosome 9 and chromosome 17 might produce such a phenotype. (34 refs.)

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321 **VEALL, R. M.; RANDLE, A. T.; CHITHAM, R. C.; & SALDANA-GARCIA, P.** A profoundly mentally handicapped woman with a ring chromosome 22. *Journal of Mental Deficiency Research*, 19(3):225-243, 1975.

A small PMR woman of 38 found to have one chromosome No. 22 replaced by a ring is described in terms of case history, present condition, mental development, anthropometry, karyotype, dermatoglyphics, and biochemistry, including investigation of blood proteins and enzymes. The case included only a slight epicanthus among the constant signs of the syndrome (epicanthus and MR; muscular hypotonia and growth retardation to a lesser extent). The mental and physical retardation have been noted in all previous cases, but the facial grimacing, prominent mandible, asymmetry of the breasts and ears, and small palpebral fissures have not been previously noted. In the light of present knowledge it is not possible to describe a syndrome for ring chromosome 22. (78 refs.)

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322 **REID, A. H.; ADAMSON, D. G.; BROWNING, M.C.K.; & DONALD, JANET M.** A case of idiopathic Addison's disease and probable autoimmune thyroiditis in a mongol. *Journal of Mental Deficiency Research*, 19(3/4):205-208, 1975.

What may be the first recorded case of combined autoimmune thyroiditis and idiopathic Addison's disease in a mongol is described. The subject was a trisomy 21 mongol, SMR, who developed severe vomiting around the age of 26, leading to hyponatremia, hypochloremia, mild hyperkalemia, and markedly elevated blood urea. He had at least one typical grand mal fit; EEG was highly abnormal, being dominated by widespread slow activity. Suspected diagnosis of Addison's disease was confirmed by the lack of steroid secretory response to 250μg intramuscular Synacethen. Antibodies were shown to both adrenal and thyroid tissue. Serum TSH and ACTH were well above upper limits of normal (0-6μU/ml and 10-70pg/ml, respectively), excluding primary hypopituitarism and according with levels one would expect in a case of combined hypothyroidism and Addison's disease. The presence of adrenal antibodies suggests that Addison's disease arose on an autoimmune basis; there was also evidence that hypothyroidism arose on an autoimmune basis. Since mongols are unusually liable to pathological and accelerated brain and tissue aging, epilepsy, and other neuropathological disorders that may have an autoimmune basis,

changes in immune competence may be a factor in pathological aging. The relationship between state of autoimmunity, chromosome abnormality, and pathological aging ought to be investigated. (15 refs.)

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323 **MCMILLAN, B. C.; HANSON, R. P.; GOLUBJATNIKOV, R.; & SINHA, S. K.** The effect of institutionalization on elevated IgD and IgC levels in patients with Down's syndrome. *Journal of Mental Deficiency Research*, 19(3/4):209-223, 1975.

Serum levels of IgA, IgD, IgE, IgG, IgM and levels of secretory IgA (S-IgA) in nasal specimens were quantitated by radial immunodiffusion in a group of 41 institutionalized patients with Down's syndrome (all nondisjunctive trisomy-G karyotype) and their age, sex, and race matched controls, consisting of institutionalized nonmongols and normal noninstitutionalized subjects. Analysis of levels of all immunoglobulins by age and sex showed no differences within the populations. However, levels of IgA, IgD, and IgG were found significantly higher in mongols than in the other 2 populations. The concentrations of IgM were lower in mongols than in other institutionalized MRs but higher than in noninstitutionalized normal controls. Levels of S-IgA or IgE were similar in all populations. Length of institutionalization was associated with elevated levels of IgA and depressed levels of IgM in mongols, but elevated IgC levels in mongols did not appear to be associated with their length of institutionalization. Similarly, elevated levels of IgD in mongols were not associated with their length of institutionalization. (38 refs.) (Author abstract modified)

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324 **PYERITZ, REED; BECKWITH, JON; & MILLER, LARRY.** XYY disclosure condemned. *New England Journal of Medicine*, 293(10):508, 1975. (Letter)

Published reports and personal experience indicate that it is not advisable to disclose karyotype information to the parents of XYY sons. The majority of randomly ascertained XYY infants are physically, psychologically, and socially indistinguishable from their XY counterparts throughout early childhood. Furthermore, XYY males identified in surveys of adult populations have had no evidence of socially deviant or abnormal behavior. In the few cases in which behavioral speech and learning problems have arisen in XYY children, there is no information to suggest that knowledge of the karyotype by parents, physicians, or therapists can or should influence either the mode of treatment or the outcome. Since the manner in which the extra Y chromosome fits into the complex causal web of any developmental problems is totally unfathomable at present, no therapy specific for XYY persons can be proferred.

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325 **PETRE-QUADENS, O.; & DE LEE, C.** 5-Hydroxytryptophan and sleep in Down's syndrome. *Journal of the Neurological Sciences*, 26(3):443-453, 1975.

The effects of 5-hydroxytryptamine intake on the eye movement frequencies of paradoxical sleep were investigated in 6 mongoloid infants, each of whom underwent from 4 to 19 night recordings. The infants were aged 2-6 months at the beginning of 5HTP administration; results cover epochs extending from 12 to 36 months. 5HTP dosage was adapted to the infant's tolerance levels: 2 received 1-9mg daily, and 4 received 3-4mg. Abnormal infants and children belonging to a different etiological group acted as controls. Eye movement density was decreased significantly in nontreated mongoloids as compared with normal controls. 5-HTP did not evidence any long-term differences in EM frequencies; its short-term effects lasted up to 8 days. Objective results of 5HTP intake in mongoloid infants consisted only in an increase in body size and weight; speech onset remained delayed. (26 refs.)

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326 **SHIONO, HIROSHI; KADOWAKI, JUNICHI; FUJIWARA, TAKEKI; & NAKAO, TOORU.** Hepatitis-associated (Australia) antigen and Down's syndrome. *Clinical Pediatrics*, 14(12):1150-1154, 1975.

Examination of sera of 223 patients with Down's syndrome and 378 patients with other forms of MR suggested that maternal exposure to hepatitis-associated (Australia) antigen (HAA) was not associated with the subsequent birth of an infant with Down's syndrome. HAA was detected in 13 (5.8 percent) of the patients with Down's syndrome and in 14 (3.7 percent) of the other MRs. The frequency of HAA was much greater in institutionalized patients with Down's syndrome (10.4 percent) than in noninstitutionalized patients (2.4 percent). Of 78 mothers of infants with Down's syndrome, 1 had HAA. In Japan the incidence of HAA in Down's syndrome patients is considerably lower than that found in the United States and Germany but similar to that seen in Poland. (16 refs).

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327 **KIM, HYON J.; KOUSSEFF, BORIS G.; HSU, LILLIAN Y. F.; & HIRSCHHORN, KURT.** Balanced translocation in fetal wastage. *Journal of Obstetrics and Gynecology*, 52(2):220-222, 1975.

A mother with a history of a spontaneous early abortion and 2 abnormal infants was found to have a balanced reciprocal translocation involving the long arms of a number 4 and number 11 chromosome. Because the 2 exchanged chromosome segments were almost identical in size, the translocation was not detected by conventional karyotyping. A new banding technique revealed the aberration as well as identical chromosome aberrations in the patient's 2 phenotypically normal sons. Couples with histories of fetal waste with or without children with congenital anomalies should be studied with the new banding techniques for precise chromosome identification. (9 refs.)

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328 **KOLB, JONATHAN E.; & *HEATON, ROBERT K.** Lateralized neurologic deficits and psychopathology in a Turner syndrome patient. *Archives of General Psychiatry*, 32(9):1198-1200, 1975.

A case report of a patient with more extensive ability deficits and more psychopathology than has been found with most Turner syndrome patients is presented. The patient, a 26-year-old female, was diagnosed at 24 (karyotype 46xxqi, isochromosome of the long arm of one X chromosome). She was administered an extensive series of neuropsychological tests, which included the Halstead-Reitan Battery and the Wechsler Adult Intelligence Scale. The testing indicated impairment of a variety of functions normally subserved by the right cerebral hemisphere, including difficulty in integrating spatial relationships. When the patient's syndrome was diagnosed, she was started on estrogen therapy, with no recognition by her parents or physicians that she might need help adjusting to its effects. At this time she developed psychotic symptoms. The estrogen-stimulated physical and psychological changes were induced, without any support or preparation, into a family system that had employed massive denial about her biological and emotional peculiarities. When the family showed no ability to adapt to her belated development, the patient was driven to more private and fantastic ways of coping with it. The outcome of this case suggests that, especially when estrogen treatment had been much delayed, careful attention should be given to its potential disruptive effects on established coping patterns. (16 refs.)

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329 **LOPEZ, VICENTE; OCHS, HANS D.; THULINE, HORACE C.; DAVIS, STARKEY D.; & WEDGWOOD, RALPH J.** Defective antibody response to bacteriophage 174 in Down syndrome. *Journal of Pediatrics*, 86(2):207-211, 1975.

Seventeen children with Down syndrome and 6 MRs of comparable age and sex in the same institution were immunized with bacteriophage

174, a potent protein antigen which allows precise definition of the humoral immune response with determination of antigen clearance, primary and secondary antibody responses, and the type of antibody produced. Eleven of the 17 patients with trisomy 21 demonstrated significantly impaired primary antibody response. After secondary immunization with bacteriophage, all but 1 Down syndrome patient had diminished responses, with impairment moderate in 7 and very low in 9 Ss. After a third immunization, those with moderately impaired secondary immune responses developed normal serum titers of predominantly IgG antibody. Patients with low secondary immune responses had very impaired tertiary immune responses consisting mainly of serum IgM antibody. Results may help to explain age-related morbidity and mortality from infections in Down syndrome patients. (31 refs.)

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330 **LINARELLI, LOUIE G.; PAI, K. COPALKRISHNA; PAN, SYLVIA F.; & RUBIN, HARVEY M.** Anomalies associated with partial deletion of long arm of chromosome 11. *Journal of Pediatrics*, 86(5):750-752,1975.

A 12-year-old boy with PMR and multiple congenital abnormalities was found to have a partial deletion of the long arm of chromosome No. 11 (46XY, del(11) (q22), in all cells analyzed. Although conventional staining failed to identify a chromosome abnormality, the deletion was determined by trypsin-Giemsa banding. The child, who was of low birth weight and demonstrated growth failure, was also prone to frequent infections. Audiometric evaluation demonstrated severe bilateral deafness. Hematological and immunological laboratory findings were normal. An abnormal dermatoglyphic pattern was noted. Chromosomal analysis of each parent was normal. This appears to be the first reported patient with a deletion involving chromosome No. 11. (2 refs.)

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331 **VILLAVERDE, MANUEL M.; & DA SILVA, JACYNTHO A.** Turner-mongolism polysyndrome. Review of the first eight known cases. *Journal of the American Medical Association*, 234(8):844-847, 1975.

Reports of the first 8 cases of Turner-mongolism polysyndrome, a combination of Turner syndrome and mongolism, are presented. Clinical manifestations of the disorder include retarded growth, shield-like chest, poorly developed breasts, absence of body hair, brachycephaly, short neck with foldings and low hairline, oblique eyes with epicanthal folds, squat nose, scrotal or normal tongue, abnormal hard palate, short hands and feet, normal clitoris, frequent cubitus valgus, MR and the XO/G+ karyotype, mosaic for XO in most instances. It is estimated that there are now more than 100 cases of this syndrome. Although a single cause for all cases is not known, they probably have a common basic pathogenesis. (15 refs.)

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332 **LINARELLI, L. G.; PAI, K. G.; PAN, S.; & RUBIN, H. M.** A new syndrome resulting from partial deletion of the long arm of chromosome 11. Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):976, 1975.

A patient with a partial deleted long arm of chromosome 11 (11 q-) in all cells analyzed in both lymphocytes and cultured fibroblasts presented with low birth weight, profound MR, failure to thrive, trigonoencephaly, hypotelorism, epicanthal folds, bilateral ptosis, left iris coloboma, downward slant of the palpebral fissures, low-set anomalous ears, deafness, flat bridge of the nose with antiverted nostrils, carp-shaped mouth, intraventricular septal defect, and anomalies of the hands. The patient had increased susceptibility to respiratory infection and staphylococcal skin infections. Both parents had a normal karyotype. No specific immune defect has yet been found in the patient. (Abstract)

333 **BENEZECH, M.; & NOEL, B.** Neurological disorders in 47,XYY men. *Lancet*, 2(7935):617, 1975. (Letter)

Among 51 47,XYY males, 1 S (among 22 adults identified in a survey of the general population) had a tremor, 3 Ss (among 23 47,XYY men in psychiatric wards or maximum security hospitals) had seizures and suspected epilepsy, and 1 younger patient (among 6 children or teenagers with a 47,XYY karyotype) with some mongoloid features had choreiform movements and late sequelae of acute anterior poliomyelitis. The findings suggest that there may be a neurologic abnormality in XYY men as well as a mental disorder causing socially deviant behavior. (5 refs.)

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334 **BANNISTER, DAVID L.; & ENGEL, ERIC.** A G-like trisomy with a major 15 proximal supernumerary component derived from a D/E balanced maternal interchange. *Journal of Pediatrics*, 86(6):916-917, 1975.

An apparent G tisomy in a severely defective child was traced to a balanced interchange between a 15 and a 17 chromosome in the mother. The child's supernumerary chromosome was a translocation derivative of the No. 15, which made him mainly but not exclusively trisomic for part of this chromosome. Whereas the presence in the child of a supernumerary G-like chromosome, identical to a translocation derivative resulting from a balanced interchange in the mother, cannot be seen as a coincidence, in this case a random segregation resulted from the maternal translocation, causing acquisition of a translocation derivative as supernumerary chromosome. The unique feature of the patient is that the extra G-like member brought about trisomy for a portion of the short arm of 17 as well as for a major 15 proximal segment, since it arose from a maternal D/E balanced interchange. (5 refs.)

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335 **SHIONO, HIROSHI; KADOWAKI, JUNICHI; & NAKAO, TOORU.** Maternal age and Down's syndrome: the shift of affected infants to younger mothers in Hakkaido. *Clinical Pediatrics*, 14(3):241-244, 1975.

Because the incidence of children with Down's syndrome born to younger mothers in Tokyo, Japan, appears to be rising, a survey was made of all incidence of Down's syndrome seen in the outpatient clinic of Sapparo Medical College and 43 Hokkaido institutions between 1944 and 1972. Diagnosis of Down's syndrome was confirmed cytogenetically in 175 out of 429 patients, including a case of D-G translocation. A clear shift to a younger age was found in the age distribution of mothers of infants with Down's syndrome (a mean maternal age of 36.07 years in 1944-1948, gradually decreasing each 5-year period and reaching 26.94 years in 1969-1972) as well as in the age of child-bearing mothers of infants in the control population taken from census reports. Researchers have hypothesized that the additional Number 21 chromosome in Down's syndrome is the result of nondysjunction during the meiotic process in a parental (usually maternal) gamete and that maternal aging is a factor in the nondysjunction. This hypothesis is not applicable to Down's syndrome children born to younger mothers. One hundred thirty three of these patients born to young mothers have been investigated cytogenetically, and none have been found to have a translocation. The findings suggest that other mechanisms are operating together with maternal age in influencing the occurrence of Down's syndrome. (7 refs.)

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336 **WINTERS, ALAN J.; BENIRSCHKE, KURT; WHALLEY, PEGGY; & MACDONALD, PAUL C.** Mosaicism and lack of fluorescence of Y chromosome. *Journal of Obstetrics and Gynecology*, 46(3):367-370, 1975.

A 24-year-old woman patient referred for investigation of infertility and prolonged amenorrhea was found to have XO/XY and possibly XYY mosaicism. The patient had nonfluorescent Y

chromosomes, streak gonads, normal uterus, tubes, and vagina, and some manifestations of Turner's syndrome. Although the greater percentage of cells in the leukocyte culture of this patient was XY, no masculinization was evident. Sex phenotype may be determined, in part, by the relative frequency of the cell lines in the gonads. Several theories of etiology of chromosomal mosaicism include the possibility of a translocation as the causative factor, but none has been demonstrated. (9 refs.)

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337 **ALBERMAN, EVA.** The prevention of Down's syndrome. *Developmental Medicine and Child Neurology*, 17(6):793-795, 1975.

Methods which could be employed to reduce the incidence of Down's syndrome are discussed. Although the data on incidence at birth are incomplete, due to a poor reporting system which consists mainly of voluntary notifications, it has been estimated (using data gathered from England and Wales in 1970) that 16.7 percent of infants with Down's syndrome were born to the 2 percent of mothers 40 years or older, and an additional 18.4 percent were born to the 6 percent of mothers aged between 35 and 39. Thus, one method of prevention would be to encourage mothers to have their babies before the age of 30, when the risk is very low. Selective abortion of affected fetuses is a less speculative means of reducing incidence at birth. In theory, universal prenatal diagnosis and selective abortion could prevent the birth of any child with Down's syndrome. The risk of the procedure is very largely that of accidentally causing an abortion of the pregnancy, though this risk appears to be very small. The cost of maintaining a patient with Down's syndrome for anything up to a normal life span is so considerable that even universal screening can be shown to be worthwhile in these terms. The limiting factor in this situation is the manpower and expertise needed to carry out the amniocenteses, the tissue culture, and karyotyping. (5 refs.)

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338 **FRANTS, R. R.; ERIKSSON, A. W.; JONGBLOET, P. H.; & HAMERS, A. J.** Superoxide dismutase in Down syndrome. *Lancet*, 2(7923):42-43, 1975. (Letter)

The controversy over the gene-dosage effect in trisomy 21 is briefly summarized, and, in connection with this controversy, the development of a quantitative immunological technique to determine the amount of superoxide-dismutase (SOD) protein in human material, including red cells, is reported. The SOD concentration was correlated with hemoglobin, with a hemolysate pool from laboratory personnel as the standard. Thirty three institutionalized Down's syndrome patients age 4-29 were investigated; 22 of them had been karyotyped and were found to be regularly trisomic 21. Two control groups were studied: 1) MR but chromosomally normal patients from the same wards, matched for age and sex; and 2) staff from the same wards. Results indicate that Down's syndrome patients have, on the average, 40 percent more SOD activity in the erythrocytes than both control groups. Although there is no evidence that the gene for any of these enzymes is located on chromosome 21, and the excess in enzyme activity cannot be explained directly on the basis of gene-dosage effect, the gene for SOD has been assigned to chromosome 21 by linkage analysis using somatic-cell hybrids. Thus, it may be that the high SOD activity in trisomy 21 is the consequence of a gene-dosage effect. (12 refs.)

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339 **CULLITON, BARBARA J.** XYY: Harvard researcher under fire stops newborn screening. *Science*, 188(4195):1284-1285, 1975.

Political pressures have brought the study of XXY or XYY chromosome patterns among newborn infants at the Boston Hospital for Women to a stop. Science for the People group had criticized the study as unethical and stigmatizing to its subjects. Although the Harvard Medical School overwhelmingly approved continuation of the study, the principal researcher has succumbed to pressures from various advocacy groups that oppose screening. His position that scientists

should continue to investigate the behavioral risks of the XYY configuration clashes with the opposition's stand that attempts to determine a genetic basis for antisocial behavior constitute a diversion from the necessary task of changing the social and psychological conditions that generate such behavior.

340 **KIM, HYON J.; HSU, LILLIAN Y. F.; PACIUC, SOPHIE; CHRISTIAN, STELUTA; QUINTANA, ALICIA; & HIRSCHHORN, KURT.** Cytogenetics of fetal wastage. *Science*, 293(17):844-847, 1975.

Current advances in banding techniques were used to determine the frequency and types of chromosome aberrations in 50 couples with a history of fetal wastage (spontaneous abortion, stillbirths, or births with congenital abnormalities). All cases were studied with techniques using Q or G banding, or both. Three balanced translocations (1 in 16 couples) were revealed in banded karyotypes, all of which appeared to be normal by conventional staining. All 3 were found in the group of couples who had at least one stillbirth or a liveborn infant with multiple congenital anomalies in addition to earlier spontaneous abortions. Carriers of balanced translocations are at high risk for producing chromosomally abnormal gametes and have an apparently increased risk of meiotic nondisjunction of other chromosomes, leading to a trisomic offspring. Identification of abnormal karyotype in cases of fetal wastage allows for more precise genetic counseling and provides couples with the option to terminate a pregnancy with an unbalanced chromosome constitution. (20 refs.)

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341 **BANIK, N.L.; DAVISON, A.N.; PALO, J.; & SAVOLAINEN, H.** Biochemical studies on myelin isolated from the brains of patients with Down's syndrome. *Brain*, 98:213-218, 1975.

A collaborative study of a number of cases of mongolism in which separation and analysis of myelin have been independently investigated is described. Recovery of myelin from white matter homogenates was reduced in most of the 7 cases of Down's syndrome examined. Measurement of activity of the myelin marker enzyme 2', 3'-cyclic nucleotide 3'-phosphohydroline also indicated a significant reduction of myelin content. The myelin appears to have a normal protein composition but a reduced content of phosphohydrolase activity. There was no firm evidence of abnormalities in the lipid composition of the myelin. It seems unlikely that deficiency in myelin explains the MR found in Down's syndrome; amyelination more likely reflects a more general structural change affecting neuronal growth and synaptogenesis. (31 refs.)

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342 **SCHWITZGEBEL, R. KIRKLAND.** XYY chromosome study. *Science*, 187(4178):696, 1975.

The objections of Beckwith et al. to the Harvard XYY study overlook the possible effects of the interaction of genetic and social factors in behavior. They assume that the design of the study makes it impossible to obtain information about the effects of informing parents about the XYY chromosome. But the beliefs and related child-rearing behaviors of the parents in the study will probably range along a continuum, permitting meaningful assessment of the effects of child rearing practices and of the XYY chromosome.

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343 **BECKWITH, JON; ELSEVIERS, DIRK; GORINI, LUIGI; MANDANSKY, CHUCK; & CSONKA, LESLIE.** Harvard XYY study. *Science*, 187(4174), 1975. (Letter)

Harvard's XYY study cannot yield meaningful results, has no benefits to the families involved, poses substantial risks, and only serves to propagate the mythology of the genetic origins of antisocial behavior. Telling a parent that a child is

XYY induces anxieties about the child's behavior that would not arise otherwise. The design of the study, which includes no controls, precludes the possibility of obtaining any information about the presumed relationship between the extra chromosome and the child's behavior. The study exemplifies the questionable premises and the social and political application of some genetic research programs to which Science for the People objects. (2 refs.)

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344 **DAVIS, WAYNE H.; & MAGE, MICHAEL.** Harvard XYY study. *Science*, 187(4174):298-299, 1975. (Letters)

Two letters continue the controversy over the XYY chromosome and its relation to criminal behavior. Mr. Davis points out that parents who want information on the sex chromosomes of their infants are entitled to it, and the investigators must be entitled to provide it for them. Mr. Mage points out that statistical evidence indicates that the XY karyotype is associated with major social problems such as violent crime and war. XYs present a much greater problem for the community, and the problem should not be neglected by medicine and psychiatry.

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345 **ELUL, RAFAEL; HANLEY, JOHN; & SIMMONS, JAMES Q., III.** Non-Gaussian behavior of the EEG in Down's syndrome suggests decreased neuronal connections. *Acta Neurologica Scandinavica*, 51(1):21-28, 1975.

Because a shift from Gaussian to non-Gaussian distribution of electroencephalograph EEG amplitude has been shown to correlate reliably with performance on mental tasks, EEGS of 8 children with Down's syndrome were analyzed by computer. Highly non-Gaussian properties were found at all ages studied. EEGs of normal children exhibit a non-Gaussian distribution of amplitude in the early months of life, which becomes increasingly Gaussian before the age of 1 year and remains normal. Findings for MR autistic children were similar to those obtained in normal children. Down's syndrome may result from impoverished synaptic contacts on cortical neurons. It is possible that cerebral cortical pathological changes may not be present at birth but may appear in the early postnatal weeks. (17 refs.)

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346 **GUSTAVAON, K.-H.** Management of Klinefelter's syndrome. *Clinical Pediatrics*, 14(6):543, 1975. (Letter) JOHNSON, CHARLES F.: Editorial comment.

The value of screening newborns for detection of Klinefelter's syndrome, as reported in Harris and Heller's study, is noted. Early recognition of the syndrome in boys with marked behavioral-psychiatric disturbances would enable them to receive treatment and special teaching before school difficulties add to their problems. Parent counseling is an important adjunct, to forestall unrealistic demands for achievement and to promote their cooperation with hospital and school. However, there does not seem to be any particular advantage to detecting Klinefelter's syndrome at birth, because of probable unfavorable parental reactions and because many 47,XXY males will experience no obvious problems in adulthood except for sterility. (4 refs.) An editorial comment discusses testosterone therapy and screening for the syndrome.

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347 **VERMA, ISHWAR C.; & SINGH, MEHARBAN.** Down syndrome in India. *Lancet*, 1(7917):1200, 1975. (Letter)

Differences in the frequency of Down's syndrome in surveys of newborns in India are considered and compared to frequencies reported in other parts of the world. Data from a series of World Health Organization studies, which taken together reveal only 1 child with Down's syndrome born to 66,000 Indian mothers, generated the impression

that the frequency of Down's syndrome in India is extremely low. This, however, is contrary to clinical experience of most pediatricians in India, whose reported data taken together indicate a mean frequency of 1.19/1000 births from among 35,325 births (range 0.73 to 1.6). The combined results of 9 surveys in Europe, North America, and Australia gave an average of 1/663 births (1.51/100 births), with a range of 1.15 to 1.19/1000 births. Five chromosomal surveys of newborns in the United Kingdom and North America yielded a mean of 1/1000 births, with a range of 0 among 2081 births in London, Ontario, to 1.5/1000 births in Edinburgh. The frequency of Down's syndrome, therefore, does not appear to be very different in various parts of the world. (8 refs.)

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348 **FABER, RAYMOND; & ABRAMS, RICHARD.** Schizophrenia in a 47,XYY male. *British Journal of Psychiatry*, 127:401-403, 1975.

Strict phenomenological criteria were used to diagnose schizophrenia in a 36-year-old 47,XYY male admitted to an acute treatment psychiatric unit because of auditory hallucinations. The patient demonstrated severe formal thought disorder without clinical evidence of coarse brain disease, as well as the Capgras syndrome. He had been admitted to hospitals for psychiatric treatment on over 20 previous occasions since the age of 21. The 47,XYY chromosome anomaly should be considered as a possible cause of symptomatic schizophrenia. Future investigations of the effects of an extra Y chromosome on brain function may yield cues as to the etiology of idiopathic schizophrenia. (14 refs.)

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349 **JACOBS, PATRICIA A.** XYY genotype. *Science*, 189(4208):1044, 1975. (Letter)

The suspension of XYY screening at the Boston Hospital for Women denies to XXY, XYY, and XXYY men, their families, and society the opportunity to understand and modify intelligently the behavioral effects of a high-risk genotype. In the first survey (conducted by me and my colleagues) that demonstrated an excess of men with an additional chromosome in an institutionalized population (a group of male MR patients in a state hospital for dangerous patients), the statement that 3.5 percent of the population studied were XYY males, representing a marked frequency increase compared to the frequency of such males at birth, could hardly be considered premature. Further studies amply confirmed the original observations. Excess of males with abnormal chromosome constitution in mental-penal settings applies as well to XXY men and especially to XXYY men, who are found 100 times more frequently in mental-penal settings than among the newborn. It seems reasonable to believe that an abnormal chromosome constitution may make its carrier particularly susceptible to the effects of an adverse environment. The project was deemed by peer review to meet rigorous ethical and scientific standards required of all research involving human subjects. (5 refs.)

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350 **HOOK, ERNEST B.** XYY genotype. *Science*, 189(4208):1044-1045, 1975. (Letter)

There is a clear association of the XYY genotype with deviance, as attested by the frequency of XYY men in security settings compared to the rates in newborn or adult populations. But the nature of the relationship is complex, revolving about our understanding of causality and human behavior. The XYY genotype may result in patterns of neural organization that affect cognition or produce other behavioral difficulties that make it harder for such individuals to cope with environmental stresses. Whether such a connection is causal awaits universal agreement on definition of the term as applied to human behavior genetics. The important questions con-

cerning the XYY, XXY, and XXYY genotypes are what factors are associated with the increased frequency of affected males in security settings and mental institutions, and what is to be learned about the possible contribution of such factors to behavior. (2 refs.)

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351 **MCCARROLL, A. M.; MONTGOMERY, D.A.D.; HARLEY, J.MCD.G.; MCKEOWN, E. F.; & MACHENRY, J. C.** Endometrial carcinoma after cyclical oestrogen-progestogen therapy for Turner's syndrome. *British Journal of Obstetrics and Gynaecology*, 82(5):421-423, 1975.

A case of endometrial carcinoma is described which occurred in a patient treated for 13 years with combined estrogen-progestogen therapy. In 1959, at age 22 years, the patient presented with primary amenorrhea, absence of secondary sexual characteristics, a 45XO karyotype, and the clinical features of Turner's syndrome. Cyclical drug therapy with stilbestrol and ethisterone was instituted, accompanied by regular follow-ups that indicated satisfactory sexual growth until 1974, when a total hysterectomy was performed for an enlarged uterus and endometrial polyp. No ovarian tissue was recognized, and histology showed a well-differentiated adenocarcinoma with a tendency to squamous metaplasia and osteoid formations in both cornua. Although a genetic predisposition of patients with X chromosomal abnormalities to this type of tumor cannot be excluded in this case, the estrogen therapy probably played a causative role in the development of endometrial carcinoma. Periodic gynecological examinations with curettage are advisable in Turner's syndrome patients receiving such therapy, even when progestogens accompany the treatment. (12 refs.)

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352 **FRANZKE, ALICE W.** Telling parents about XYY sons. *New England Journal of Medicine*, 2(293):100-101, 1975. (Letter)

Disclosure of karyotype information to the parents of XYY sons is advocated by the mother of an XYY child. The child has been developmentally atypical since birth, and his behavior has been impulsive. He had behavioral, speech, and learning problems in childhood. Knowledge of the child's genetic makeup was not available until he was 16 years old. If this knowledge had been provided at an early age, more adequate help would have been provided. The emotional damage of not knowing has been enormous for the child and his family. Early diagnosis appears to offer more benefit to these boys and their families than lack of a possible stigmatizing label.

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353 **ALLERDICE, P. W.; & TEDESCO, T. A.** Localisation of human gene for galactose-1-phosphate-uridyltransferase. *Lancet*, 2(7923):39, 1975. (Letter)

Evidence which supports the assignment of human transferase to chromosome 3 and further localizes the gene to the region q21-qter on the long arm is presented. Results are presented of red-blood-cell (RBC) transferase assays on a patient who was monosomic for the segment p25→pter and trisomic for the segment q21→qter of chromosome 3, and his parents, one of whom carried an inv (3) (p25q21). The ratio of individual transferase activity to the mean transferase activity of obligate heterozygotes presumably is a measure of the number of alleles producing normal enzyme. The ratios presented for the patient suggest the expression of 2.51 to 3.19 normal alleles. Since the frequency of individuals with RBC transferase activities consistently greater than 8.0 in a population of 1700 is .0059, the possibility that the elevated activity in this patient was due to a variant of human transferase cannot be ruled out. However, the more likely explanation is that 3 normal transferase alleles are expressed, which confirms the previous assignment of this gene to chromosome 3 by a completely different approach and localizes the gene to the segment 3q21→qter. (5 refs.)

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354 **RATCLIFFE, S. G.; & EVANS, H. J.** Sex-chromosome abnormalities and social class. *Lancet*, 1(7916):1144, 1975. (Letter)

Information relevant to the controversy over the possible relationship of sex-chromosome abnormalities and social class was obtained from studies on 2 series of unselected newborns, the first from the sex-chromatin survey of 1959-61 on 20,725 infants and the second from the chromosome survey of 1967-74 on 11,680 infants. In these 2 surveys 69 children were found to have sex-chromosome abnormalities. A comparison of the combined totals for social classes IV and V with the combined totals for classes I, II, and III reveals no significantly different chromosomally abnormal groups. However, the difference between social-class distribution in the controls and the chromosomally abnormal was significant, the difference in each study being in the direction of fewer abnormalities in classes IV and V. Thus, there is no evidence that more of the newborn with sex chromosome anomalies come from the lower socioeconomic classes. There is likewise no evidence that the small proportion of XYY patients in maximum security hospital predominantly come from these classes. There are 20 times as many among patients in maximum security hospitals as among the newborn population, but socioeconomic background does not appear to be the major factor accounting for this increase. (5 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Congenital malformations

355 **HOLT, SARAH B.** Dermatoglyphics in Prader-Willi syndrome. *Journal of Mental Deficiency Research*, 19(3/4):245-258, 1975.

The hand and sole prints of 16 patients with the Prader-Willi syndrome were analyzed to clarify conflicting statements on this syndrome in the literature. The dermatoglyphics showed no distinctive features and differed little from those of the normal population. On the average, pattern intensity of hands, and particularly feet, was low. In the majority of cases maximal atd angles were similar to those of controls; as in the normal population, there was a wide angle on some hands. Dermatoglyphics is of little use in diagnosing the syndrome. (23 refs.)

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356 **LOWRY, R. B.** Cryptorchidism -- incidence in British Columbia and among sibs. *Pediatrics*, 55(3):442, 1975. (Letter)

A review of the caseload of cryptorchidism on the British Columbia Registry for Handicapped Children and Adults was stimulated by a letter on this subject in *Pediatrics*. In the period from 1964 to 1972 inclusive, there were 638 cases of either unilateral or bilateral cryptorchidism found among a total number of 158,987 live male births (a frequency of 4/1,000 live male births). Three pairs of brothers were found in this caseload. Although only 1 pair was a twin in all families, one boy had a right undescended testis, while the brother had a left-sided lesion. One of the 6 also had an inguinal hernia, but none had any other disability or malformation, so that they do not belong in any syndrome complex. These figures may help give some perspective on cryptorchidism in the total male population and that found among families. (3 refs.)

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357 **CHATTHA, AMRIK S.; & DELONG, G. ROBERT.** Sylvian aqueduct syndrome as a sign of acute obstructive hydrocephalus in children. *Journal of Neurology, Neurosurgery, and Psychiatry*, 39(3):288-296, 1975.

Eight cases of obstructive hydrocephalus manifesting palsy of upward gaze and other features of the Sylvian aqueduct syndrome are reported. During the crisis of intracranial hypertension, all of the patients developed upward gaze palsy and variable abnormalities of the convergence mechanism, such as paralysis, spasm, and convergence nystagmus. The frequent apparent blindness was probably related to gaze paralysis, since visual evoked responses were present. Analysis of these patients revealed that the vertical gaze paralysis and the other ocular and visual disturbances were seemingly connected in some manner with the expansion of the ventricular system, worsening as it progressed, lessening and finally disappearing as it was relieved by effective shunting. The disease which caused hydrocephalus and which varied from case to case was only indirectly responsible, since it remained after hydrocephalus was controlled. Although it has been postulated that compression of the tectal and pretectal region from the distended suprapineal recess may be the mechanism, the presence of other features of the Sylvian aqueduct syndrome along with upward gaze palsy in several of the reported cases suggests periaqueductal dysfunction. (32 refs.)

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358 **SHENKIN, HENRY A.; GREENBERG, JACK O.; & GROSSMAN, CHARLES B.** Ventricular size after shunting for idiopathic normal pressure hydrocephalus. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(9):833-837, 1975.

The ventricles in 19 idiopathic normal hydrocephalus patients were visualized subsequent to shunting to determine whether there is a relationship between clinical improvement and reduction in ventricular size. Ten patients showed no clinical response to shunting, but nevertheless all had some reduction in ventricular size after operation. Five of these patients had what appeared to be significant reduction (more than 10 percent) in ventricular size (from 13 to 37 percent). Four of the failure group had positive isotopic cisternograms, and 2 of these had large decreases in ventricular size, each greater than 35 percent. In the patients with a moderate response, 4 of 5 had a mild change in ventricular size, and only 1 had a truly large decrease (45 percent). The decrease in the others ranged from 6 to 8 percent. In the patients with an excellent response, 2 showed a significant change in size (40 and 23 percent smaller) but, surprisingly, in the other 2 in this group there was no change in ventricular size. Results indicate that overall there is no relationship between clinical improvement after shunting and whether (or to what degree) reduction of ventricular size occurs in patients with idiopathic normal pressure hydrocephalus. This suggests that the positive effect of shunting in at least some instances is due to some other factor than reduced ventricular size. (11 refs.)

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359 **TROOST, B. TODD; SAVINO, PETER J.; & LOZITO, JOHN C.** Tuberous sclerosis and Klippel-Trenaunay-Weber syndromes. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(5):500-504, 1975.

A patient with the complete symptomatology of both tuberous sclerosis and the Klippel-Trenaunay-Weber syndrome, believed to be the first reported association of these 2 entities, is described. The patient was a 41-year-old SMR woman with a history of seizures who did not speak and had had increased difficulty in walking for 1 year. Adenoma sebaceum were present in a "butterfly" distribution over the nose and malar region and on the chin. Also present were small nodules on diffusely hypertrophic gums, multiple peri- and subungual fibromas in fingers and toes, bony enlargement and firm soft tissue hypertrophy below the left knee, superficial venous varicosities over the left leg, flat cutaneous naevi with capillary hemangioma, 3 gray-white retinal hamartomas less than a disc diameter in size, diffuse hyperreflexia, prominent jaw jerk, snout reflex, and bilateral extensor plantar responses. Electroencephalograms showed diffuse symmetrical slowing with paroxysmal abnormalities. Skull radiographs revealed several sclerotic areas of the

calvarium without intraparenchymal calcification. Radiographs revealed soft tissue enlargement in the left leg, generalized demineralization of the left tibia and fibula, and hypertrophic periosteal bone formation. There were avascular mass lesions in the liver, spleen, and kidneys, and a large arteriovenous malformation in the lower left leg. All the major characteristics of both syndromes were present in this case (25 refs.)

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360 **SCHREINER, A.; HOPEN, G.; & SKREDE, S.** Cerebrotendinous xanthomatosis (cholestanolosis). *Acta Neurologica Scandinavica*, 51(5):405-416, 1975.

Two sisters, aged 38 and 32, suffering from cerebrotendinous xanthomatosis are described. Clinical findings included xanthomas, central nervous affection with motor and mental dysfunction, EEG changes, and juvenile cataract. Diagnosis was established by demonstration of increased amounts of cholestanol in serum. Both sisters had amenorrhea, and their excretion of dehydroepiandrone in the urine was increased. In the elder sister, the levels of urinary 17-keto steroids, androsterone, and estradiol were also increased. Other unusual features of the disease in the elder sister were hyper-prebeta-lipoproteinemia and serum cholesterol in the higher normal range. (21 refs.) (Author abstract modified)

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361 **SAY, BURHAN.** Misuse of acronyms and the VATER association. *Journal of Pediatrics*, 86(2):315, 1975. (Letter)

In regard to a previously published paper, it is suggested that use of the acronym "VATER association" (vertrebral defects, anal atresia, T-E fistula with esophageal atresia, renal defects, and radial limb dysplasia) should be discontinued. The acronym does not remind the practitioner of the components of the disorder, nor does it cover all of its features. Allowing the same letter to represent more than one malformation could further complicate the problem, and adding further letters would result in an acronym which is hard to remember and difficult to pronounce. The use of the original name with a minor modification is proposed – Radial dysplasia/Imperforate anus/Vertebral anomalies syndrome – until the disorder is more clearly delineated. (4 refs.)

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362 **CLARKE, WILLIAM L.; & WELDON, VIRGINIA V.** Growth hormone deficiency and Fanconi anemia. *Journal of Pediatrics*, 86(5):814-815, 1975.

A 3-year-old girl presenting many of the abnormalities seen in Fanconi anemia, including chromosomal breaks, failed to respond normally to arginine and L-dopa provocative tests for growth hormone release. The patient, who was below the third percentile for height and weight, had a completely normal hematologic status. Multiple congenital abnormalities included an absent right thumb and radius, a hypoplastic left thumb, and an anteriorly placed semi-imperforate anus. Family history was negative for short stature, congenital and hematologic abnormalities, and endocrinopathies. Although the etiology of short stature often seen in Fanconi anemia could be attributed to chronic anemia, renal disease, or intracellular chromosomal abnormalities, some patients clearly have growth hormone deficiency. Response of these patients to exogenously administered human growth hormone should be evaluated further. (3 refs.)

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363 **SCHERZER, ALFRED L.** Hydrocele following placement of a ventriculoperitoneal shunt. *Journal of Pediatrics*, 86(5):811, 1975. (Letter)

Two cases in which hydrocele emerged as a complication of peritoneal shunting are reported. A ventriculoperitoneal shunt had been placed in both boys (2 and 3 months old, respectively) after closure of the menigomyelocele sac shortly after

birth. In both cases, x-rays confirmed the presence of a shunt tip in the scrotum. Bilateral inguinal hernias were found in one case. The other case was characterized only by swelling of the scrotum. Both patients responded well to surgical repair and shunt repositioning. An increased incidence of clinical inguinal hernia after initial shunt procedures indicates that particular attention should be given to subtle signs of hernia or increasing hydrocele formation both before and after peritoneal shunting. (5 refs.)

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364 **JONES, KENNETH L.; & *SMITH, DAVID W.** The Williams elfin facies syndrome. *Journal of Pediatrics*, 86(5):718-723, 1975.

To characterize more accurately the Williams elfin facies syndrome, a sporadic disorder of unknown etiology, 19 patients were evaluated. The most consistent features were growth deficiency (usually of postnatal onset), mild microcephaly with MR, and an altered pattern of facial development which includes short palpebral fissures, a stellate pattern in the iris, medial eyebrow flare, a depressed nasal bridge with anteverted nares, and thick lips. The typical facies which is suggestive of this disorder was present by birth and tended to become more striking over a period of time. Only 32 percent of the patients had evidence of supravalvular aortic stenosis, and none had documented hypercalcemia. The designation of "infantile hypercalcemia, peculiar facies, supravalvular stenosis" seems to be inappropriate. (11 refs.)

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365 **TEMTAMY, SAMIA A.; MILLER, J. DANIEL; & HUSSELS-MAUMENEE, IRENE.** The Coffin-Lowry syndrome: an inherited faciodigital mental retardation syndrome. *Journal of Pediatrics*, 86(5):724-731, 1975.

Clinical features observed in 8 MR patients in 3 unrelated families suggest that syndromes described by Coffin and associates and Lowry and associates are the same hereditary faciodigital syndrome rather than 2 entities. Skeletal, orodental, and dermatoglyphic findings as well as histopathologic changes in the patients indicate that the Coffin-Lowry syndrome is a heritable disorder of connective tissues. Males were more severely influenced than females, suggesting X-linked or sex-influenced autosomal dominant inheritance. Multiple spontaneous abortions in 2 affected females and previous reports of multiple abortions and neonatal deaths (primarily male) indicate that the trait may be lethal in severely affected patients. (7 refs.)

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366 **PEARSON, JOHN; DANCIS, JOSEPH; AXELROD, FELICIA: & GROVER, NICOLA.** The sural nerve in familial dysautonomia. *Journal of Neuropathology and Experimental Neurology*, 34(5):413-424, 1975.

Consistent pathological changes in the sural nerves of 6 subjects with familial dysautonomia are described. The nerves of dysautonomic children were smaller than those of controls, a difference that became more evident after the age of 2. The density of axons and the total number of axons were sharply reduced in dysautonomia. Number of nonmyelinated fibers was strikingly reduced in all categories, with veritable disappearance of the larger axons. No ultrastructural abnormalities were seen in individual myelinated fibers, but Schwann cells often contained no axons, had long redundant folds of cytoplasm, often interdigitated complexly, and enveloped bundles of collagen fibrils to form collagen pockets. Fluorescence revealed a deficiency in catecholamine axons in the sural nerve and in the walls of accompanying arteries. The early appearance of symptoms and signs of familial dysautonomia suggest an abnormality in intrauterine development, perhaps caused by a defect in trophic neuron interactions. (23 refs.)

Departments of Pathology and Pediatrics
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367 **SHORE, RONALD. N.** Myotonic dystrophy. *Journal of Obstetrics and Gynecology*, 45(2):234, 1975. (Letter)

Hydramnios is among the many complications of pregnancy which are associated with myotonic dystrophy, an inherited form of muscular dystrophy, characterized by myotonia, muscle weakness, lens opacities, intellectual deterioration, and endocrine disturbances. In some cases hydramnios has occurred in several successive pregnancies. In several cases in which hydramnios has been associated with myotonic dystrophy, infants died during labor in early life from respiratory insufficiency. Although it is not yet possible to detect the presence of myotonic dystrophy in the embryo directly, antenatal diagnosis is sometimes possible through determination of sector status of an embryo. (8 refs.)

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368 **SWENSSON, RICHARD E.; LINNEBUR, A. CAROLYN; & PASTER, STUART B.** Striking aortic root dilatation in a patient with the Larsen syndrome. *Journal of Pediatrics*, 86(6):914-915, 1975.

A young male patient with the facies, joint dislocations, and other features characteristic of the Larsen syndrome presented with marked enlargement of the aortic cusps, marked dilatation of the ascending aorta, tortuosity of the great vessels, and mild aortic insufficiency. Pectus charinatum, a high-arched palate, markedly dilated aortic root, and long, thin, tapering fingers suggested an overlap with the Marfan syndrome. However, the absence of increased span/height and distal/proximal limb ratios was not consistent with that disease. While the nature and degree of aortic dilatation in the patient was very unusual in the absence of other congenital or acquired heart disease or the Marfan syndrome, the occurrence of vascular disease was not necessarily surprising, since the Larsen syndrome is probably a disorder of connective tissue. (8 refs.)

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369 **DUNCAN, SHEILA L. B.** Antenatal misdiagnosis of neural-tube defects. *Lancet*, 2(7937):709, 1975. (Letter)

A misdirected tap, aspirating maternal urine instead of liquor, will probably not be recognized in antenatal diagnosis unless exclusion is carried out regularly. This error may become significant if maternal rather than fetal cells are grown and subjected to chromosomal analysis. A simple routine carried out with all patients who undergo amniocentesis in early pregnancy to eliminate this source of error is described.

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370 **MAHMOOD, KHALID; &* ALTSHULER, GEOFFREY.** Amniotic band syndrome in an immature fetus. *Obstetrics and Gynecology*, 45(3):349-351, 1975.

A case is reported of a 14-week fetus with congenital malformation due to amniotic bands. A 16-year-old primigravida presented with a 6-day history of abdominal cramps and vaginal passage of blood clots. Incomplete spontaneous abortion was diagnosed. The placenta and fetus were in the vagina and were manually extracted. On examination, the specimen consisted of a macerated fetus with compressed face, cleft lip and palate, flat nose, and prominent left eye. The left hand and right foot were grossly malformed; the left hand was covered by membranous tissue. Proximal to the left hand the arm showed an annular constriction with a fine filamentous amniotic strand. A filamentous amniotic tag projected from the surface of the placenta adjacent to the insertion of the umbilical cord. Placental sections revealed a subchorionic blood clot in the center of the placental disc. Histologically, a moderate sclerosis of the subamniotic connective tissue was observed. There was no evidence of recent or past infection in the placenta or membranes. The literature is briefly reviewed, and attention is drawn to the occurrence of this syndrome in the immature human fetus. Because the etiologic correlates of amniotic bands are not precisely known, more data must be collected on the factors in the pathogenesis of the syndrome. (15 refs.)

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371 **GUHA-RAY, DILIP K.** Obstetric problems in association with anencephaly: a survey of 60 cases. *Obstetrics and Gynecology*, 46(5):569-572, 1975.

Obstetric problems associated with 60 anencephalic births to 58 mothers during the period 1959-1973 are analyzed according to cause and severity. Forty-one cases (68.3 percent) were undiagnosed until onset of labor or after birth; 39 cases reached 35 weeks of gestation or more. Antenatal diagnosis after x-ray examinations were made for hydramnios (12 cases), intrauterine fetal death (2), postmaturity (3), twins (1), antepartum hemorrhage (1), abnormal presentation (1), and diabetes mellitus (4 cases, 3 with associated hydramnios). Diagnosis during labor showed hydramnios (3 cases), questionable breech or face presentation (1), inability to diagnose presentation (1), and intrapartum hemorrhage to exclude placenta previa (1). Anencephaly is known to occur in patients with a history of previous birth of spina bifida infants. In this series, recurrence of neural tube defects was 5 in 29 cases. Postmaturity (42 weeks or more), retained placenta, postpartum hemorrhage, urinary tract infection, and association of diabetes mellitus were found significantly more frequently in patients with anencephalic infants than in the control patients. Early diagnosis of anencephaly is extremely desirable, because most of the obstetric problems discussed in this survey can be avoided by early termination of pregnancy. Parental psychologic distress is common. Once the diagnosis is established, the psychological needs of the parents should be cared for and the pregnancy terminated without increasing the risk to the mother. Both ultrasound and amniocentesis for estimation of amniotic fluid alpha-fetoprotein are methods available for diagnosis of anencephalic pregnancies in the early trimester. (12 refs.)

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372 **MOINI, A. R.; EMAMY, H.; & ASADIAN, A.** The Laurence-Moon-Biedl syndrome: six cases of obesity, short stature, mental retardation, small genitalia, and retinitis pigmentosa. *Clinical Pediatrics*, 14(9):812-815, 1975.

Six cases of the Laurence-Moon-Biedl (LMB) syndrome in children, including one less than a year old, are described to demonstrate that the diagnosis may be made in infancy and childhood even though some characteristics of the syndrome may be missing. In each of the patients, as many as 5 of the 6 cardinal symptoms (retinitis pigmentosa, short stature, hypogenitalism, obesity, positive family history, and polydactyly and other congenital malformations) were present. Two theories have been proposed to explain the genetics of the LMB syndrome. One suggests that a single gene produces all the signs, with the incomplete syndrome caused by modifying genes. The other proposes that 2 or more genes cause the syndrome; both are recessive and lie on the same chromosome, one causing abnormalities of ectoderm and the other of mesoderm. Klein and Ammann suggest the following classification for the syndrome: (a) complete forms, with the 5 cardinal symptoms; (b) incomplete forms, with 1 or 2 cardinal symptoms absent; (c) abortive forms, with only 1 or 2 symptoms or indistinct manifestations of several symptoms; and (e) extensive forms, with other congenital anomalies or hereditary disorders. This classification is helpful in the older child and adult, but diagnosis in the infant and young child still remains difficult. (15 refs.)

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373 **KHAN, ABDUL JAMIL; MITRA, NIRMALA; EVANS, HUGH E.; & ELGUEZABAL, ALBERTO.** Incontinentia pigmenti with unusual features. *Clinical Pediatrics*, 14(9):874-876, 1975.

A case is described of a 3-year-old female who had been followed from birth for incontinentia pigmenti (IP), characterized by pigmented cutaneous lesions (including the face), and for accompanying severe neurological handicaps (generalized convulsions, MR, and microcephaly). At birth, which followed a normal full-term gestation and delivery, the patient had average weight, length, and head circumference, but a single umbilical artery and general cutaneous lesions were observed. At 4 weeks of age, she was rehospitalized for convulsions and hyperspastic limbs. Her subsequent course has been marked by repeated hospitalizations for convulsive disorders, elevated

alkaline phosphatase, high serum phosphorus, elevated serum calcium, abnormal EEGs, a head circumference below the third percentile for her age, streaks of bizarre pigmentation on the skin, and spasticity of all 4 limbs. At 34 months, immunoglobulin M was elevated; the patient could not walk or talk. Cases of IP with pigmented lesions at birth, especially of the face, are rare. The incidence of a single umbilical artery in IP may be important for defining the risk of severe associated anomalies. The elevated immunoglobulin M seen in this case has been reported once previously in 3 cases. The role of immunologic systems in this disease is unknown. (6 refs.)

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374 **MUSALLAM, S. S.; POLEY, J. R.; & RILEY, HARRIS D., Jr.** Apert's syndrome (acrocephalosyndactyly). *Clinical Pediatrics*, 14(11):1054-1061, 1975.

Case reports are presented for 7 infants and children with Apert's syndrome, an infrequent disorder characterized by malformation of the skull (usually oxycephaly or acrocephaly) in association with symmetric syndactyly of the hands and feet. Most patients had a characteristic facial appearance: pronounced facial dysostosis with shallow orbitae, maxillar hypoplasia, prognathia, malocclusion, and downward slash of palpebral fissures. Deformities of the extremities were symmetrical and usually more pronounced in distal portions of the upper extremities. Some degree of mental impairment was common. Malformations of the spine were seen in several cases. Family data strongly indicate that acrocephalosyndactyly is a genetic disorder. A distinction is made between Apert's syndrome and various other syndromes. (17 refs.)

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375 **JACQUES, SKIP; GARNER, JOHN T.; SHELDEN, C. HUNTER; JOHNSON, PAUL E., JR.; & JOHNSON, DAVID.** Hereditary hemorrhagic telangiectasia. A case report with known cerebral involvement and cardiac catheterization data. *Clinical Pediatrics*, 14(11):1031-1036, 1975.

Laboratory and angiographic data are reported for a 8-year-old girl with a Rendu-Osler-Weber syndrome. Positive cerebral angiographic findings of large arteriovenous communications are noted, along with catheterization data revealing pulmonary abnormalities secondary to the cerebral arteriovenous fistula. No abnormalities were demonstrated within the pulmonary vasculature itself. Pulmonary arteriovenous fistulas should be looked for in every person who has telangiectasia or who is a member of a family having this disease, whether he is symptomatic or not. Work-up of all patients includes a high clinical index of suspicion based on observation of the characteristic cutaneous and mucocutaneous lesions, which are tiny venous capillary connections. Other pertinent laboratory findings include secondary polycythemia. Treatment is primarily symptomatic. (19 refs.)

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376 **JANCAR, J.** Neurocutaneous disorder and mental functioning. *British Journal of Psychiatry*, 126:105-113, 1975.

Various acquired and congenital skin disorders were found among 1,500 hospitalized MRs. Drug side effects, dietary deficiencies, and metabolic disorders were responsible for most acquired skin disorders. Congenital neurocutaneous disorders were found in 51.1 percent of the patients (excluding mongols and those with acquired conditions). Patients with neurocutaneous disorders ranged from near normal in intelligence to PMR. Psychological disturbances, superimposed on MR, sometimes caused skin disorders to flare up. Degree of mental malfunctioning was related to the extent to which skin lesions interfere with normal brain function. In most cases, skin lesions were treated by drugs and diet. Amniocentesis represents the most important of several advances in the diagnosis and possible prevention of disorders characterized by neurocutaneous disorders and MR. (31 refs.)

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377 **LAURENCE, K. M.; WALKER, SHEILA M.; LLOYD, MARY; & GRIFFITHS, B. L.** Equivocal amniotic fluids associated with open spina bifida. *Lancet*, 2(7924):81, 1975. (Letter)

The ability to detect wide open neural tube malformations by means of alpha-fetoprotein (AFP) levels in the amniotic fluid between 16 and 20 weeks is called into question by a case in which a 31-year-old woman gave birth to a female with a myelocele. Amniocentesis (undertaken because the woman had previously born an anencephalic infant) showed AFP levels which were well above normal values at both 17 and 18½ weeks (78μg/ml of AFP and 50μg, respectively, measured by the Rocket technique). The pregnancy was allowed to run its normal course because it appeared to be clinically normal, the amniotic AFP level was falling, and AFP levels in the 2 amniotic fluids estimated at another laboratory were thought to be only 70 and 31μg. The infant, who died at 5 days, had a large open myelocele in the lumbar region associated with kyphosis and almost complete paralysis of the legs and sphincters. There was also an exomphalos containing small intestines. The case underlines the advisability of viewing any level above the usual range with extreme suspicion.

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378 **FIELD, BARBARA; & KERR, CHARLES.** Antenatal diagnosis of neural-tube defects. *Lancet*, 2(7929):324-325, 1975. (Letter)

Two instances of discordance between the results of antenatal investigation for neural-tube defects and the actual fetal condition are reported. In the first case, a 24-year-old woman had a first child with an extensive lumbar meningomyelocele who died at 6 weeks. She elected to have her second pregnancy screened and presented at 15 weeks (104 days) amenorrhea. Despite normal amniotic α-fetoprotein (AFP) levels and normal echogram, a female infant was born with a large open thoraco lumbar meningomyelocele but without clinical hydrocephaly. In the second case, a 22-year-old woman with spina bifida of the sacral spine elected to have her second pregnancy screened, as her first child was a female anencephalic born at 8 months. Although echograms demonstrated no abnormality, there was elevation of maternal serum and amniotic fluid AFP. In view of probable risks to subsequent pregnancies the parents did not elect to have a termination. A clinically normal infant was born at full term without radiological evidence of spine abnormalities. These cases reinforce the need for caution when counselling at-risk parents on the reliability of antenatal diagnosis. (1 refs.)

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379 **KUKOLICH, MARY; & HALL, JUDITH G.** Arterial occlusion in 47,XYY male. *Lancet*, 2(7927):233, 1975. (Letter)

Arterial occlusion in a 15-year-old Caucasian male with 47,XYY chromosome complement is reported. Over the past 4 years, the boy has had increasing numbness and pain in both feet during and after exercise. One year ago, the right dorsalis pedis pulse was noted to be absent; the left is normal. Arteriogram of the right leg 6 months ago demonstrated abrupt blockage of the popliteal artery at the level of the knee, without other evidence of vascular disease. He still has numbness and discoloration of his feet after limited exercise, the right foot being more affected than the left. Although there seems to be an increased incidence of varicose veins in 47,XYY males, this is the first known report of arterial obstruction associated with abnormalities of the sex chromosomes. As peripheral vascular disease is extemely rare in this age group, the association with 47,XYY may be more than chance. (5 refs.)

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380 **SUTHERLAND, GRANT R.** Antenatal misdiagnosis of spina bifida. *Lancet*, 2(7928):280-281, 1975. (Letter)

Concern is expressed over reports of the antenatal misdiagnosis of spina bifida using amniotic-fluid α-fetoprotein (AFP) levels. Macrophage count in amniotic fluid is suggested as a useful adjunct to

the antenatal diagnosis of open central nervous system (CNS) lesions because, unlike amniotic fluid α-fetoprotein, it is not affected by either fetal or maternal blood contamination. It has been shown that the macrophage count in amniotic fluid is raised in cases of open central nervous system lesions. Although this test cannot be regarded as diagnostic because false-positive results may occur, no false-negative findings have been recorded.

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381 **BRERETON, R. J.** Treatment of spina bifida. *Lancet*, 2(7923):28-29, 1975. (Letter)

Exception is taken to the view expressed by Campbell that certain lesions of spina bifida are inoperable. Whether or not one can justify early emergency neonatal surgery in all cases of large thoracolumbosacral myelomeningocele depends on one's own particular philosophy, but is is never true to say that such lesions are clearly inoperable, and the termination of pregnancy cannot be justified simply on the grounds of the inoperability of the fetal lesion. The objective fact that nearly all lesions in spina bifida are treatable and operable must not be confused with one's subjective judgment as to whether or not the results of such surgery are acceptable or worthwile.

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382 **KHAN, AMN U.; & SOARE, PAGEEN.** Intelligence, speech and language development of hydrocephalic children. *Developmental Medicine and Child Neurology*, 17(7):116-117, 1975. (Letter)

Although hyperverbility and superficiality are commonly associated with hydrocephalus, these language abnormalities were not evident in a group of 35 hydrocephalic children of average or borderline intelligence. All 35 children had been diagnosed early in life and had been provided with various types of shunts. Mild (43 percent), moderate (16 percent), or severe (6 percent) articulation problems were exhibited in 65 percent of the Ss as measured by the Arizona Articulation Proficiency Scale. Development of vocabulary (assessed by the Peabody Picture Vocabulary Test) was commensurate with intelligence levels of Ss. (5 refs.)

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383 **CANTUARIA, A. A.; & JONES, A. L.** Immunoglobulin M in human amniotic fluid and its possible association with neural-tube malformations. *British Journal of Obstetrics and Gynaecology*, 82(4):262-264, 1975.

The results of screening the amniotic fluid of 11 patients for α-fetoprotein (AFP) and several other proteins are reported. Quantitative estimations of albumin, AFP, α-2-macroglobulin, immunoglobulin A (IgA), IgG, and IgM were determined by the single radial immunodiffusion technique. IgM was present at elevated levels of 7.1 and 6.9mg/100ml in the amniotic fluid from 2 fetuses who were found to have a lumbar myelomeningocele and a spina bifida, respectively. It was not detectable in the other specimens of amniotic fluid. These results and the findings of other researchers concerning the possibility of local production of IgM within the central nervous system suggest that the presence of IgM in the amniotic fluid of the 2 fetuses with open neural tube defects was probably the result of a direct stimulus to the lymphoid tissue of the central nervous system by foreign antigens in the amniotic fluid. (14 refs.)

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384 **NEVIN, N. C.; & ARMSTRONG, M. J.** Raised alpha-fetoprotein levels in amniotic fluid and maternal serum in a triplet pregnancy in which one fetus had an omphalocoele. *British Journal of Obstetrics and Gynaecology*, 82(11):826-828, 1975.

The case is reported of a 31-year-old patient in whom raised α-fetoprotein (AFP) concentrations were associated with an omphalocele. Ultrasonic scan at 16 weeks gestation indicated the possibility of triplets, and AFP levels measured at 16 and 17 weeks were markedly raised, with serum concentrations 6-11 times higher than the control means for the corresponding period of gestation. The pregnancy of the patient, who had had a previous child with a neural tube defect, was terminated at 17 weeks. Two of the fetuses were apparently normal, but the third had an extensive omphalocele, radial aplasia, and digital abnormalities. This is believed to be the first report of a raised amniotic fluid AFP concentration in early pregnancy associated with an omphalocele, with a level usually observed with an open neural tube defect. (17 refs.)

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385 **STEWART, C. R.; WARD, A. MILFORD; & LORBER, J.** Amniotic fluid α-fetoprotein in the diagnosis of neural tract malformations. *British Journal of Obstetrics and Gynaecology*, 82(4):257-261, 1975.

The findings in 400 pregnancies in which amniotic fluid α_1-fetoprotein (AFP) determinations were performed are summarized, and the results and complications in 105 consecutive amniocenteses in "at risk" pregnancies are reported. The normal range for AFP was defined by 350 samples from normal pregnancies. In the first group of 400 pregnancies, 18 gave rise to fetuses with tract abnormalities, of whom 17 had elevated AFP levels. In the consecutive series of 105 amniocenteses, 4 patients had elevated amniotic fluid AFP levels, and all 4 had neural tract abnormalities. The findings confirm the feasibility of diagnosing neural tract malformations (other than "closed" lesions) at a stage when termination can be offered. Possible reasons for "false negative" and "false positive" results are discussed. (10 refs.)

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386 **VINCE, J. D.; MCMANUS, T. J.; FERGUSON-SMITH, M. A.; & RATCLIFFE, J. G.** A semi-automated serum alphafetoprotein radioimmunoassay for prenatal spina bifida screening. *British Journal of Obstetrics and Gynaecology*, 82(9):718-727, 1975.

A single-stage semiautomated radioimmunoassay for α-fetoprotein (AFP) is described which fulfills the screening requirements of adequate specificity, precision, simplicity, speed, sensitivity, and sample capacity. A retrospective assay of 15 serum samples from 9 patients known to carry a fetus with neural tube defect showed the serum AFP level to be above the ninety-fifth percentile in 4 of 5 cases of open defect sampled between 15 and 20 weeks gestation. A prospective study of 671 unselected pregnancies, which used results from 1,534 samples to determine the normal AFP range, detected 2 cases of anencephaly from serum analysis performed between 15 and 20 weeks gestation. The findings of both studies confirm the ability of the method to identify open neural tube defects in early pregnancy and justify pilot studies to evaluate its use as a general screening procedure in areas with a relatively high occurrence of neural tube defects. (22 refs.)

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MEDICAL ASPECTS – Etiologic Groupings
Prematurity and low birthweight

387 **DRISCOLL, SHIRLEY GRIFFITH.** Prevention of prematurity and perinatal morbidity. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation*. Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 14, pp. 343-353.

The costs of premature birth can be estimated in terms of lives lost, productivity unrealized, funds expended for care, and personal suffering of its victims and their families. Obviously, neonatal mortality is greatest among infants born at the youngest gestational ages, their deaths being attributable to the functional immaturity of the entire organism. The major, recognized threats to fetal and neonatal survival are relatively few and include antenatal asphyxia and placental insufficiency, malformations, erythroblastosis, infections, and conditions peculiar to the prematurely born. The future promises a generally improved outlook if prenatal and perinatal environmental injury can be mimimized. Mental disorders may be related to factors operative during the antecedent pregnancy or delivery, many of which are now avoidable within developed societies and their health care systems. In view of the impact of antenatal asphyxia on the unborn and of low birth weight on the neonate, their prevention warrants intensive study. (27 refs.)

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388 **JEWETT, JOHN FIGGIS; & MUIRHEAD, DONALD M., JR.** Placental insufficiency causing fetal death. *New England Journal of Medicine*, 293(23):1203-1204, 1975.

A case of preventable death of a low birth weight infant owing to placental insufficiency is reported. The infant was delivered by cesarean section in the forty-first week of pregnancy after the mother had shown signs of bleeding and spontaneous rupture of membranes. When the uterus was opened only 5ml of blood was encountered, and the umbilical cord was found looped around one shoulder of the stillborn infant. The placenta was bipartite with lobes of unequal size; the smaller disclosed recent retroplacental hemorrhage. Post mortem examination of the infant showed asphyxia but no glomerulopoiesis; fetal maturity was therefore consistent with 41 weeks. The distressing combination of maternal bleeding, barely audible fetal heartbeat, and heart rate at lower limits of normal had been ignored. Technics that might have saved the infant, such as electronic monitoring with interpretation of kymographic records, placement of fetal scalp electrodes, sampling of fetal scalp blood for pH and gas determinations, and the Apt test, were not used. Death from placental insufficiency was not inevitable; the diagnosis of partial abruptio placentae could have been made in the presence of symptoms, and hysterotomy performed in time. In a subsequent pregnancy, the mother underwent cesarean section at 37 weeks, yielding a healthy infant and disclosing placenta praevia with multiple small succenturiate lobes.

389 **ABITBOL, CAROLYN L; FELDMAN, DONITA B.; AHMANN, PETER; & RUDMAN, DANIEL.** Plasma amino acid patterns during supplemental intravenous nutrition of low-birth-weight infants. *Journal of Pediatrics*, 86(5):766-772, 1975.

The effects of intravenous nutrition supplement (INS) and conventional feedings on growth, morbidity, mortality, and plasma acid patterns were compared in 42 low-birth-weight (LBW) infants. Although INS and control groups had similar total caloric and protein intakes, INS infants demonstrated greater weight gain. The overall mortality rate did not differ in the 2 groups, but INS infants who finally died of respiratory failure lived significantly longer (mean=30 days) than nonsurviving controls (mean=5days). Hyperglycemia was seen more often in INS infants, but other complications were equally prevalent in both groups. Hypoaminoacidemia was observed in LBW infants with concentrations of glutamine, alanine, glycine, histine, and ornithine significantly below values

obtained for 8 full-term infants. INS feedings resulted in increases of threonine, serine, and methionine above full-term values, but glutamine remained subnormal. An adjustment in INS composition is suggested which would eliminate possible ill effects on the central nervous system. (28 refs.)

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390 **PASAMANICK, BENJAMIN.** Maternal nutrition and low birth-weight. *Lancet*, 2(7937):704-705, 1975. (Letter)

The Lancet has demonstrated irresponsibility and incompetence in its discussion of maternal nutrition and low birth weight. One editorial treats this problem, which affects hundreds of millions of malnourished and starving individuals, in only half a page. And this editorial compares 2 studies which find an association between prenatal nutrition and birth weight with 2 unsophisticated studies which report no association. The almost definitive experimental study of Bacon Chow in Taiwan, who demonstrated the linear relationship of protein and caloric intake with birth weight, is ignored. Instead, a short-sighted report by Smith and another one by Thomson are substituted. Smith used a biased sample who underwent the short-lived Dutch famine in the last months of World War II in German-occupied Amsterdam and Rotterdam and ignored the fact that the available food was not distributed randomly. Thomson praised a study by Stein and Susser, who observed the same population and drew the same inexcusable conclusion -- that birth weight did not fall very much; moreover, Thomson's study in Aberdeen, an important fishing port, was done on a sample largely above the malnourishment threshold, probably on the basis of fish-protein intake.

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391 **SUSSER, MERVYN; & STEIN, ZENA.** Maternal nutrition and low birth-weight. *Lancet*, 2(7936):664, 1975. (Letter)

Effects of the Dutch famine of 1944-45 on the reproductive process and the subsequent health and mental performance of those exposed in utero are discussed. Maximum effect on mean birth weight occurred with exposure in the third trimester of pregnancy at the height of the famine, leading to a 9 percent reduction, from a mean of 3338g to 3011g. This reduction was followed by a sharp rise in infant mortality in the first 3 months of life, especially after the first week. Exposure to famine in the first trimester did not affect birth weight but was followed by an excess of premature deliveries of low birth weight and an excess of stillbirths and first-week deaths. The influence of maternal starvation on the reproductive process can be profound. (6 refs.)

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392 **CADDEL, JOAN L.; BYRNE, PAUL A.; TRISKA, ROLAND A.; & MCELFRESH, ARTHUR E.** The magnesium load test: III. Correlation of clinical and laboratory data in infants from one to six months of age. *Clinical Pediatrics*, 14(5):478-484, 1975.

Magnesium status was assessed in infants 1 to 6 months old, most of whom presented with neuromuscular hyperirritability or other signs compatible with magnesium deficiency. The parenteral magnesium load test and the plasma magnesium determination were used to evaluate the magnesium status of symptomatic infants and controls. In 26 infants with minor signs or signs that could not be explained, magnesium retention below 40 percent was found. The magnesium deficiency syndrome of growth was exemplified by 12 infants who retained 72 percent of the load. They were normal or small at birth, amply fed on demand, and grew at accelerated rates. Seven infants showed nonspecific, premonitory signs which may occur in sudden infant death syndrome, including apnea, gasping, tonic or tonic-clonic fits, and flaccidity. The group retained 88 percent of the load in spite of preload magnesium in 2 Ss. Magnesium appeared to be specific therapy in high retention groups. (12 refs.)

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393 **BYRNE, PAUL A.; & CADDELL, JOAN L.** The magnesium load test. II. Correlation of clinical and laboratory data in neonates. *Clinical Pediatrics*, 14(5):460-465, 1975.

The magnesium load test was carried out in 91 newborn infants. Most Ss had symptoms compatible with the diagnosis of electrolyte imbalance with relative or absolute magnesium deficiency. A 40-hour test, with an 8-hour preload and a 32-hour postload collection of urine, was used for most Ss. In general low plasma magnesium levels correlated with high magnesium retention, but predictability was poor. Magnesium was specific therapy for nonresponsive hypocalcemia. The concept that plasma magnesium is an unreliable guide to the patient's magnesium status was reinforced. (7 refs.)

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394 **CADDELL, JOAN L.** The magnesium load test: I. A design for infants. *Clinical Pediatrics*, 14(5):449-451, 457-459, 518-519, 1975.

Low serum magnesium values may be associated with low birth weight, peripheral edema, and neurological signs. Data from 56-hour magnesium load tests in premature and mature infants from 1 to 6 months of age were analyzed to determine the shortest suitable test. Findings suggest the following test criteria for full-term infants: an 8-hour preload period; a load of 0.49mEq of magnesium/kg body weight; and a postload collection of 32 hours for neonates and 24 hours for infants between 1 and 6 months old. Renal immaturity of premature infants made interpretation of results less certain; however, avid retention of magnesium appeared to be the predominant finding. To avoid magnesium overload and calcium depletion, special precautions are indicated in testing and repletion of young infants. (17 refs.)

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395 **FREEMAN, ROGER K.; & JAMES, JEAN.** Clinical experience with the oxytocin challenge test. II. An ominous atypical pattern. *Journal of Obstetrics and Gynecology*, 46(3):255-259, 1975.

An ominous pattern of atypical fetal heart rate responses to induced uterine contractions during the antepartum period was observed in 3 cases where perinatal deaths resulted from apparent asphyxia. The unusual cases represent gravidas with chronic hypertension, severe intrauterine fetal growth retardation, and chronically low 24-hour urinary estriol excretion. Oxytocin challenge test tracings of these patients were characterized by a pattern that resembles variable deceleration with early onset and loss of baseline irregularity. In 2 cases there was an overshoot of fetal heart rate return after deceleration. Possible mechanisms include severe uteroplacental insufficiency and profound umbilical cord compression. (4 refs.)

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396 **HAYDEN, BERNARD L.; SIMPSON, JOE LEIGH; EWING, DOUGLASS E.; & OTTERSON, WARREN.** Can the oxytocin challenge test serve as the primary method for managing high-risk pregnancies? *Journal of Obstetrics and Gynecology*, 46(3):251-254, 1975.

A study of 105 patients who underwent 225 oxytocin challenge tests (OCT) indicated that the OCT can serve as the primary method for managing pregnancies characterized by possible placental insufficiency. Tests were positive in 8 instances, suspicious in 21, and negative in 196. No perinatal deaths occurred. Fetuses with positive tests were delivered by cesarean section. Four of the 8 had previously had suspicious tests, indicating possible deterioration of uteroplacental function. Urinary excretion of estriol did not decrease significantly in any patient. Except for patients with preeclampsia, all pregnancies with a negative OCT were allowed to terminate spontaneously. Late-onset deceleration patterns during labor developed in 5 infants with negative tests. Patients with negative tests should be restudied in 1 week; those with suspicious tests should be retested within 72 hours. (12 refs.)

397 **CAMPBELL, STUART; & WILKIN, DAVID.** Ultrasonic measurement of fetal abdomen circumference in the estimation of fetal weight. *British Journal of Obstetrics and Gynaecology*, 82(9):689-697, 1975.

Accurate prediction of birth weight by ultrasonic measurement of fetal abdomen circumference was explored, and the number of small-for-date fetuses that might be detected by this method if applied to the whole obstetric population was assessed. Ultrasonic examination of 140 fetuses was made within 48 hours of delivery using the Diasonograph 4102 to obtain compound B-scans. Circumference measurements were made to the nearest millimeter by means of a map measurer. Accurate birth weight predictions varied with fetus size, but, expressed as a percentage of the predicted weight, confidence levels remained constant throughout the weight range. Results of simulation studies using these data suggest that routine screening at 32 and 36 weeks would detect successfully 87 and 75 percent of small-for-dates fetuses, respectively, and that negligible numbers of false positive diagnoses would be made. The evidence indicates that optimal screening for small for dates fetuses would combine an early determination of fetal maturity with a late measurement of fetal size. A much higher rate of successful diagnosis would then be possible, significantly reducing perinatal loss. (13 refs.)

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398 **HIGGINBOTTOM, J.; SLATER, J.; PORTER, G.; & WHITFIELD, C. R.** Estimation of fetal weight from ultrasonic measurement of trunk circumference. *British Journal of Obstetrics and Gynaecology*, 82(9):698-701, 1975.

A technique is described which uses ultrasonic measurement of fetal abdominal circumference at the level of the liver to estimate fetal weight. A standard B-mode sonar is used to determine the position of the fetus and to locate the fetal heart, a Polaroid photograph is taken of the transverse ultrasound scan at the level of the ductus venosus, and the fetal circumference is measured with a map measurer. The weights of 50 fetuses were estimated from the measured circumference by a mathematical formula and were compared with the actual birth weights of the infants born within 48 hours of the scan. The mean error in prediction was only 75.4gms, and 94 percent of the birth weights were within 145gms of the predicted values. Such reliable single or serial estimations of fetal weight would be helpful (a) in deciding delivery method when the breech presents, (b) when a previous delivery was by cesarian section, and (c) when dysmaturity, disproportion, or placental insufficiency are suspected. (7 refs.)

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399 **CAMPBELL, DORIS M.; & MacGILLIVRAY, IAN.** The effect of a low calorie diet or a thiazide diuretic on the incidence of pre-eclampsia and on birth weight. *British Journal of Obstetrics and Gynaecology*, 82(7):572-577, 1975.

The practices of reducing a patient's fat weight gain by a low calorie diet and of reducing water weight gain by a thiazide diuretic during the last 10 weeks of pregnancy were examined to determine whether they limit the incidence of pre-eclampsia or affect the baby's birth weight. Three matched groups of 51 primigravidae with a high weight gain during pregnancy were studied from the thirtieth week of gestation: Group 1 was treated by dieting, Group 2 was given a thiazide diuretic (cyclopenthiazide with slow-release potassium chloride, 2 tablets daily), and Group 3 served as a control group. No differences resulted among the groups in development of pre-eclampsia, but the control infants' birth weight was higher than in both treated groups. The control group continued to have a high weight gain, particularly those who developed proteinuria pre-eclampsia; body fat was reduced in the diet group and total body water in the diuretic group. Findings show that a reduction of body weight or total body water produced no significant reduction in the incidence of pre-eclampsia. Whether reduced birth weight in both diet- and diuretic-treated patients will affect the infants' subsequent development remains uncertain. (22 refs.)

400 **BISSONNETTE, J. M.** Relationship between fetal heart rate patterns and Apgar score in the newborn. *British Journal of Obstetrics and Gynaecology*, 82(1):24-48, 1975.

The relationship between fetal heart rate (FHR) patterns and the one-minute Apgar score in newborn infants was investigated in a study of 714 patients for whom satisfactory cardiotopographic tracings were obtained prior to full dilation of the cervix. FHR pattern distributions were classified by a modification of the Beard et al. method. The findings show that 5 FHR patterns (normal, uncomplicated baseline tachycardia, uncomplicated baseline bradycardia, acceleration, and early deceleration) were associated with a good Apgar score in the newborn. These 5 patterns accounted for 78 percent of the patients monitored. Fetal depression (1-min Apgar score less than 7) was observed most often in infants with the late deceleration pattern and with variable deceleration associated with an abnormal baseline. Other FHR patterns observed were variable deceleration with normal baseline (associated with Apgar score of 6 or less in 15.5 percent of those with the condition), uncomplicated loss of beat-to-beat variation (associated with depression in 22 percent), and flat FHR with abnormal baseline rate (associated with low Apgar scores in 36.4 percent). A plan of clinical management based on findings of the study is described.

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MEDICAL ASPECTS – Etiologic Groupings
Respiratory disorders

401 **JIMINEZ, JUAN M.; SCHULTZ, F. MICHAEL; & JOHNSTON, JOHN M.** Fetal lung maturation: III. Amniotic fluid phosphatidic acid phosphohydrolase (PAPase) and its relation to the lecithin/-sphingomyelin ratio. *Obstetrics and Gynecology*, 46(5):588-590, 1975.

The purpose of this study was to establish (a) the sequential changes in specific activity of phosphatidic acid phosphohydrolase (PAPase) in amniotic fluid and its relation to the lecithin/sphingomyelin (L/S) ratio, and (b) the origin of amniotic fluid PAPase. Amniotic fluid samples were collected sequentially by transabdominal amniocentesis in 21 patients in the course of pregnancies complicated with Rh isoimmunization and in 11 normal patients transvaginally at the time of delivery. In these normal patients, the fluid present in the nostrils and oropharynx of the infants was collected as soon as the head was delivered. The results of the determinations show that the increase in the amniotic fluid L/S ratio is preceded by an increase in the PAPase activity, rising from 15nmoles of phosphate released per milligram of protein per hour at 30 weeks to 100nmoles at 37 weeks. The mean PAPase activity in the nasopharyngeal fluid of the infant is 456nmoles of phosphate released per milliliter per hour, the amniotic fluid mean PAPase activity at delivery being 129nmoles. These findings are consistent with the view that amniotic fluid PAPase originates, in part, from the fetal lung and is also intimately related to the synthesis of surfactant lecithin, since the increase in specific activity of this enzyme in amniotic fluid precedes the surge in lecithin concentration. (14 refs.)

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402 **INDYK, LEONARD.** PO_2 in the seventies. *Pediatrics*, 55(2):153-156, 1975. (Editorial)

Several questions usually asked about the Marburg electrode for analysis of blood gases in infants with respiratory distress are answered. The

electrode is most commonly placed on the sternum of the newborn, although it has been placed on the back and on a shaved area of the fetal scalp after cervical dilation of 4-5cm. The reading of transcutaneous PO_2 is not arterial PO_2, although the 2 values are in reasonably good agreement. Since the PO_2 at the surface of unwarmed skin is near zero, there is a severe gradient in PO_2 from the arterial-capillary junction to the skin. When monitoring premature infants, the skin temperature is usually set at 42 C, which apparently provides adequate hyperthermia to attain good correlation of transcutaneous PO_2 and arterial PO_2. Actual correlation of transcutaneous PO_2 with arterial PO_2 is good in short-term runs; there is a small shift in calibration in long-term monitoring, but even so the electrode gives valuable information. Transcutaneous PO_2 is of value in avoiding hypoxia and hyperoxia. It would be useful in nearly all forms of intensive care units, recovery rooms, physiology experimentation, and in any hospital with a busy blood gas service. The precise limitation of this system in disease states in which transcutaneous monitoring is inaccurate has not yet been defined. (29 refs.)

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403 **KUHN, JERALD P.; LEE, SHERWOOD B.; JOCKIN, HUBERT; & WIEDER, WILLIAM.** Cerebro-costo-mandibular syndrome: a case with cardiac anomaly. *Journal of Pediatrics*, 86(2):243-244, 1975.

A previously documented association between Pierre Robin syndrome (micrognathia, glossoptosis, and cleft palate) and multiple bilateral rib defects was present in a female infant who died of Pseudomonas pneumonia at 70 days old. Postmortem findings included multiple rib gap defects ranging from complete apparent nonunion to solid bridging with callus. Head circumference and brain weight indicated microcephaly. Thoracic dysplasia may not always be evident on external examination; therefore radiographic examination of the chest is advised in newborn infants with Pierre Robin syndrome and respiratory distress. Reduction of the high mortality rate (85 percent) may result from early diagnosis. (3 refs.)

404 **REIS, RALPH A.; GERBIE, ALBERT B.; & GERBIE, MELVIN V.** Reducing hazards to the newborn during Caesarian section. *Obstetrics and Gynecology*, 46(6):676-678, 1975.

A technique for delivery by cesarian section is described which markedly reduces the risks to the fetus. Two obstetricians are present at every cesarian section, one for the mother and one for the infant. No preoperative medication is given except atropine. After preparation of the patient, 150-200mg of thiopental sodium are intravenously administered, succinylcholine is injected intravenously, nitrous oxide oxygen or ethylene oxygen mixture is begun, and endotracheal intubation is performed. The operation is begun 1-1.5 minutes after thiopental sodium administration: The abdomen is opened, the bladder is stripped, the lower uterine segment incised, and the head of the baby lifted through the incision. Total time from thiopental sodium administration to this point averages 4 minutes. Ergonovine (0.2mg) is administered intravenously to the mother while the nose, mouth, and pharynx of the infant are cleared. The urine contraction in response to the ergonovine spontaneously extrudes the infant's torso from the uterine cavity, and forces fluid out through the infant's nostrils and mouth; the infant cries in almost every instance. In a review of a series of 200 cesarian sections performed from 1952 to 1967, 180 were done using this technique; in these 180 patients, there was no incidence of neonatal death in a fetus more than 34 weeks of gestational age due to hyaline membrane disease or the respiratory distress syndrome. By waiting for onset of labor in a repeated cesarian section, prematurity and fetal death due to prematurity at the time of the elective repeat cesarian section have been completely eliminated. (6 refs.)

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405 **CASPI, ELIAHU; SCHREYER, IVAN; SCHREYER, PETER; WEINRAUB, ZVI; & TAMIR, ISRAEL.** Amniotic fluid volume, total phospholipids concentration, and L/S ratio in term pregnancies. *Obstetrics and Gynecology*, 46(5):584-587, 1975.

To evaluate the possible influence of the amniotic fluid volume on total phospholipid (TPL) concentration and lecithin/sphingomyelin (L/S) ratio in term pregnancies, the amniotic fluid volume, L/S ratio, TPL concentration, and TPL per sac were investigated. Samples of uncontaminated amniotic fluid were obtained by amniocentesis from pregnant patients between the thirty-sixth and forty-second week of gestation. A definite influence of amniotic fluid volume on TPL concentrations was found, while no influence on the L/S ratio was observed. Amniotic fluid volume showed a tendency to decrease after the fortieth week of gestation. The total quantity of phospholipids per sac showed no significant variation between the thirty-sixth and forty-second week of gestation. Since most fatalities in premature infants are the result of respiratory distress syndrome, the determination of fetal lung maturity by means of phospholipid assays in the amniotic fluid is a subject of keen interest. High-risk pregnancies, in which fetal pulmonary maturity is frequently evaluated, are often associated with oligohydramnios or polyhydramnios, and the influence of amniotic fluid volume on the biochemical parameters tested must be taken into account. The superiority of the L/S ratio over the TPL concentration as a test of fetal pulmonary maturity may be a consequence of the fact that it is the sole parameter on which amniotic volume has little or no influence. (19 refs.)

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406 **SYBULSKI, S.; GOLDSMITH W. J.; & MAUGHAN, G. B.** Cortisol levels in fetal scalp, maternal, and umbilical cord plasma. *Journal of Obstetrics and Gynecology*, 46(3):268-270, 1975.

Fetal scalp blood was obtained from 21 patients during labor to investigate cortisol levels prior to delivery. Cortisol levels in fetal scalp plasma were significantly lower than those observed in maternal specimens obtained at approximately the same time but significantly greater than cortisol levels in cord plasma at delivery. A significant correlation was not found between cortisol levels in fetal scalp plasma and either maternal or cord plasma. Fetal adrenal response to the stress of the scalp sampling procedure may have caused transient increases in cortisol concentrations in scalp plasma. A high correlation between cortisol levels in maternal and cord plasma suggests the passage of considerable cortisol from mother to fetus at term. Treatment of one patient with beta-methasone to prevent respiratory distress (RD) in the newborn was essentially successful; the infant developed a mild form of RD but became well subsequently. (21 refs.)

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407 Exchange transfusion aids in respiratory distress. *Journal of the American Medical Association*, 234(2):139-140, 1975.

An increased infant survival rate has been effected by giving complete exchange transfusions of fresh adult blood to infants weighing less than 1,250 grams as well as larger infants with respiratory distress syndrome. The method was developed by Maria Delivoria-Papadopoulos, Leonard D. Miller, and Frank A. Oski of the State University of New York in Buffalo. Eighty-six percent of 35 low birth weight infants who were transfused survived, compared to 57 percent of infants who did not receive exchange transfusions. Respiratory distress did not develop in any of the treated infants. In larger infants with respiratory distress, 59 percent survived, compared to 39 percent treated with respiratory assistance alone. Although improved mortality rate is attributed to tissue oxygenation, other therapeutic benefits of the procedure may be responsible.

408 **ROME, R. M.; GLOVER, JENIFER I.; & SIMMONS, S. C.** The benefits and risks of amniocentesis for the assessment of fetal lung maturity. *British Journal of Obstetrics and Gynaecology*, 82(8):662-668, 1975.

Fetal and maternal effects of amniocentesis performed in late pregnancy were assessed in 483 patients (552 amniocenteses). The finding of a low lecithin/sphingomyelin ratio (<2.0) in 43 of the 419 patients who had successful amniocentesis enabled delivery to be deferred until fetal lung maturity had been reached. There was a highly

significant decrease of 59 percent in the incidence of neonatal respiratory distress syndrome (RDS) and of 49 percent in the incidence of deaths due to RDS. However, fetal death occurred after amniocentesis in 2 patients because of hemorrhage behind an anterior placenta and exsanguination, respectively, and fetal distress in labor occurred more commonly after failed amniocentesis (64). Spontaneous labor followed amniocentesis in 47 patients and occurred significantly more often after 38 weeks gestation. General findings show that amniocentesis for estimation of fetal lung maturity has proved a valuable procedure, especially in decreasing iatrogenic RDS. Factors which influence the difficulty of the procedure are analyzed, and suggestions are made for improving the technique and avoiding serious maternal and fetal sequelae. (17 refs.)

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409 **COULTER, J.B.S.; SCOTT, J. M.; & JORDAN, M. M.** Oedema of the umbilical cord and respiratory distress in the newborn. *British Journal of Obstetrics and Gynaecology*, 82(6):453-459, 1975.

The incidence of umbilical cord edema in 3 separate samples totaling 350 cases was explored, and its occurrence was compared with that found in other complications of pregnancy (abruptio placentae, macerated stillbirth, and diabetes) and conditions affecting the infant (rhesus isoimmunization, respiratory distress syndrome, and transient respiratory distress). Examination of a random series of 100 placentas and of a consecutive series of 50 Cesarian sections indicated some correlation between the occurrence (10 and 26 percent, respectively) of edematous cords and Cesarian section. In a further analysis of the records of 200 consecutive patients, 54 cases of infant respiratory distress were found, of whom 20 had cord edema. No significant associations were found between cord edema, neonatal asphyxia, or maternal hypertension or edema. Factors which might be responsible for edema of the umbilical cord are discussed in relation to the present findings: low oncotic pressure, raised hydrostatic pressure in placenta and cord, and an increase in total feto-placental water. The presence of cord edema may reflect similar changes in the lungs which predispose an infant with immature surfactant production to develop respiratory distress syndrome and the mature infant to develop transient respiratory distress. (38 refs.)

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410 **BOOG, G.; BEN BRAHIM, M.; & GANDAR, R.** Beta-mimetic drugs and possible prevention of respiratory distress syndrome. *British Journal of Obstetrics and Gynaecology*, 82(4):285-288, 1975.

The incidence of respiratory distress syndrome (RDS) in 29 preterm infants of mothers treated for premature labor with ritodrine was compared with the incidence of RDS in 34 premature infants whose mothers had not received a beta-mimetic drug. Five cases of RDS occurred among the infants of ritodrine-treated mothers, compared with 12 cases in the control group (17 and 35 percent, respectively). The possibility that ritodrine reduces the incidence of RDS was supported by a significant result for the group weighing less than 2,300gms ($p = 0.01$), which included all those affected with RDS. These results, together with those of other researchers concerning different types of catecholamine response to stress in premature and mature infants, suggest that beta-mimetic agents could conceivably counteract inappropriate and excessive alpha stress responses in the premature newborn infant. (15 refs.)

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411 **COWETT, RICHARD M.; UNSWORTH, EDWARD J.; HAKANSON, DAVID O.; WILLIAMS, JOHN R.; & *OH, WILLIAM.** Foam-stability test on gastric aspirate and the diagnosis of respiratory-distress syndrome. *New England Journal of Medicine*, 293(9):413-416, 1975.

The validity of using gastric aspirate within 30 minutes of birth as an alternative biologic fluid for the assessment of lung maturity by the foam-stability test is considered. Gastric aspirate was obtained from 79 infants. The lecithin/sphingomyelin ratio was determined in 27. The results

were compared with the incidence of respiratory-distress syndrome as determined independently by different investigators. Fifty five of 59 infants who had a positive test were normal, 3 had transient respiratory distress, and 1 had the respiratory-distress syndrome; 17 of 22 had lecithin/sphingomyelin ratios greater than 2.0. Of 9 infants who had intermediate foam-stability tests on gastric aspirate, 3 were normal, 4 had transient respiratory distress, and 2 had the respiratory-distress syndrome. All 11 infants who had negative foam-stability tests on gastric aspirate had respiratory-distress syndrome. The 3 gastric aspirates tested in this group had lecithin/sphingomyelin ratios of less than 1.5. It is concluded that the foam-stability test is a reliable index of fetal lung maturity in infants whose amniotic fluid is not available. (11 refs.)

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MEDICAL ASPECTS – Miscellany

412 **MILHORAT, THOMAS H.; HAMMOCK, MARY K.; & BRECKBILL, DAVID L.** Acute unilateral hydrocephalus resulting from oedematous occlusion of foramen of Monro: complication of intraventricular surgery. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(8):745-748, 1975.

The first case of acute unilateral hydrocephalus resulting from edematous occlusion of one foramen of Monro is reported. The acute unilateral hydrocephalus occurred in a 10-year-old male as an unexpected complication 48 hours after the removal of a small choroid plexus papilloma in the region of the foramen of Monro. Since it was subsequently established that the foraminal occlusion was transient, the most likely cause was local tissue edema. The moderate enlargement of the affected ventricle at the time of surgery and the use of a cerebral suturing technique, which prevented the escape of cerebrospinal fluid from the obstructed ventricle, may have contributed to the rapid development of symptoms in this case. The initial symptoms were those of increasing intracranial tension: generalized headache, deepening stupor, rising blood pressure, and falling pulse. These were followed by focal signs indicative of transtentorial herniation: ipsilateral third nerve paralysis and contralateral hemiparesis. Simple external drainage of the ventricle resulted in a prompt resolution of symptoms and an eventual cure. (11 refs.)

413 **MAIRA, G.; BAREGGI, S. R.; DI ROCCO, C.; CALDERINI, G.; & *MORSELLI, P. L.** Monoamine acid metabolites and cerebrospinal fluid dynamics in normal pressure hydrocephalus: preliminary results. *Journal of Neurology, Neurosurgery, and Psychiatry*, 38(2):123-128, 1975.

Determination of homovanillic acid (HVA) concentration in the lumbar and ventricular cerebrospinal fluid (CSF) of 13 patients with suspected normal pressure hydrocephalus revealed low values of HVA in all patients with reduced CSF absorption and CSF flow inversion. After shunt procedure, the HVA lumbar concentration remained low; if obstruction of the shunt occurred, it increased. Before surgery the ventricular concentration of HVA was normal. After surgery it became higher in 2 cases. Significant variations were not found in the lumbar and CSF concentration of 5-hydroxy-indole-acetic acid. Results suggest that study of HVA concentration in the lumbar CSF can be employed as an integration means to support the diagnosis of normotensive hydrocephalus. (20 refs.)

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DEVELOPMENTAL ASPECTS – Physical

414 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Adapted equipment. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 6, pp. 75-86.

For the many MR children with accompanying physical disabilities who are unable to carry out simple activities, the level of independence can be greatly increased with minor changes to existing equipment. Simple, functional adaptations can be made by the occupational therapy assistant or aide. Velcro fasteners to make closing easier, a toothbrush holder to enable a child with limited arm reach to brush his teeth independently, a hairbrush handle to enable a child with weak grasp to brush his hair, a soap mitt to make self-washing easier, a covered drinking container with straw to inhibit spillage, a cup holder to allow a child with poor grasp to use a cup, spoon holder for children with limited grasp, an angled spoon to assist a child with limited arm and hand movement, a rubber ball utensil holder for children with weak grasp, a bicycle grip untensil handle for children with weak grasp, and various communication aids, educational and recreational aids, and safety equipment may allow MR children to accomplish otherwise impossible tasks. Adaptations must be made of durable materials, selected according to the particular needs of the child.

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415 **POLEDNAK, A. P.** Respiratory disease mortality in an institutionalised mentally retarded population. *Journal of Mental Deficiency Research*, 19(3/4):165-172, 1975.

Respiratory disease mortality in the period from 1958 to 1973 was analyzed in the Ontario Hospital School at Orillia, the oldest and largest institution for the MR in Ontario, Canada. Pneumonia accounted for by for the largest proportion of deaths during this period (around 40 percent). The proportion of deaths attributed to asphyxia, or choking on food, was 8.1 percent in 1970-1973. If underlying and contributory causes are considered, 40 of 660 deaths due to known causes involved aspiration, suggesting that prevention programs might concentrate upon aspiration pneumonia, frequent in this population. In post-mortem reports of specific respiratory conditions, pulmonary congestion and bronchopneumonia were most frequently reported, followed by pleurisy and aspiration pneumonia. Acute respiratory infections were more frequently reported in females than in males. Mean age at death was greater in females than in males. (14 refs.)

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416 **HEALEY, WILLIAM C.; & KARP-NORTMAN, DOREEN S.** The hearing-impaired mentally retarded; recommendations for action 1975. *Resources in Education (ERIC)*, 11(2):91, 1976. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $8.24, plus postage. Order No. 112549.

A committee composed of representatives from the American Speech and Hearing Association, the Conference of Executives of American Schools for the Deaf, and the American Association on Mental Deficiency presents recommendations for action in serving the hearing-impaired who have deficits in adaptive behavior. The constitutional and legal rights of handicapped persons are reviewed, significant federal funding provisions are outlined, problems within the existing system of services

summarized, and suggestions for program coordination offered. The committee's issues and recommendations for legislation, financing, administrative and organizational structure, and teaching, management, and supervision are summarized.

417 **JOHNSTON, ROBERT B.** Motor function: normal development and cerebral palsy. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 2, pp. 15-55.

The motor impairments of the cerebral palsied child–imperfect control and orchestration of muscle tone and movement with subsequent incoordination, purposeless movements, imbalance, or postural instability–are the result of the brain's failure to maintain normal balances between many influences. Not only is the acquisition of a particular motor skill impaired, but further developmental progress is hindered. These impairments, deficiencies in basic motor elements and the functions underlying motor skills, vary only in degree within the different functional categories of cerebral palsy. The source of the motor deficiency is limited to nonprogressive lesions of the brain which occur during the maturing years. Whereas the normal maturational process generally progresses uniformly in all spheres, this is not necessarily the case, especially in the brain-damaged population. Therapeutic intervention can be utilized most effectively when sufficient neurological readiness for a given skill has been determined.

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418 **LEVINE, MICHAEL S.; RAUH, JOSEPH L.; LEVINE, CAROLYN W.; & RUBINSTEIN, JACK H.** Adolescents with developmental disabilities: a survey of their problems and their management. *Clinical Pediatrics*, 14(1):25-32, 1975.

The special characteristics and problems of developmentally disabled adolescents are examined by summarizing a survey of 100 patients over 12 years of age seen in the Adolescent Development Disability Program at the Children's Hospital Medical Center in Cincinnati (Ohio) between February 1969 and June 1972. A sophisticated multidisciplinary evaluation of each patient included examination by a pediatrician, medical and surgical consultations, laboratory studies, an interdisciplinary staff conference in which diagnoses and recommendations were agreed upon, and a meeting of the parents with the pediatrician, frequently together with the social worker, to discuss the findings. Twenty-two percent of the patients had a separate interpretative interview. Most of the patients fit into 1 of 4 groups: low normal IQ with poor performance due to psychological problems, true learning disability, neuromuscular disease, or known MR in need of planning for future care. Fifty-eight percent of the patients, their parents, or both, had emotional problems. It is important for the physician treating developmentally disabled adolescents to recognize and be ready to deal with the high incidence of emotional problems in these patients. The adolescent must be recognized as the primary subject, for whom special education, vocational evaluation, legal counseling, and a wide variety of services must be arranged through the physician's awareness of and professional relationships with a broad range of disciplines. (8 refs.)

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419 **BERGER, ANNA; SHARF, B.; & WINTER, S.T.** Pronounced tremors in newborn infants: their meaning and prognostic significance. *Clinical Pediatrics*, 14(9):834-835, 1975.

A clinical observation was carried out for up to 6 years among 30 infants to assess the prognostic importance of the marked tremor they had shown in the first few days after birth. The tremor had been recorded in the newborn nursery as generally fine and regular and frequently more marked in the upper or lower limbs. The character and rate of the tremors resembled those associated with the extrapyramidal tract in older patients. It lasted in its severe state for 1-2 days in 13 infants, for 3-4 days in 5, and for 5-10 days in 11. Only 1 infant was discharged with a marked tremor. The follow-up, continued at home, showed that a mild

tremor lasted in 8 infants for 2-5 months, and in 2 others it was still present at the last examination at 1.5 and 4.5 years of age, respectively. Unusual perinatal features in this group included toxemic mothers (2), intrapartum problems (7), low birth weight (8), and neonatal problems, especially respiratory distress (15). In the follow-up, 22 infants had developed normally, 2 still had persistent tremor (one familial), 2 had shown convulsions (one with familial epilepsy), and 4 had behavioral problems (familial psychiatric problems in 2, low birth weight and asphyxia in 2, and abnormal EEG in 1). The high number of unusual perinatal features in this group suggests that marked tremor is a nonspecific response of the central nervous system in newborn infants after a difficult birth or as a concomitant of perinatal problems. In the absence of additional problems such as severe perinatal disturbances or familial disorders, which alter the prognosis unfavorably), severe tremor may be regarded as nonsignificant with respect to future problems. (6 refs.)

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Haifa, Israel

420 **CHANG, P.; IRETON, H.; & HUNT, C.** Developmental status of neonatal intensive care unit (NICU) survivors at one year of age. Paper presented at the annual meeting of the Midwest Society for Pediatric Research, Chicago, Illinois, October 30-31, 1974. *Journal of Pediatrics*, 86(6):973-974, 1975. (Abstract)

During the past year, detailed developmental testing has been carried out with 77 NICU survivors who had reached a gestational age of 1 year. Findings will be presented in terms of current developmental potential as a function of gestational age and severity of the respiratory distress syndrome, among other clinical variables. The developmental outcome obtained at age 1 year can be used to identify infants who might benefit from developmental enrichment or stimulation programs and to obtain earlier correlations with acute management variables than would otherwise be possible.

421 **FOLEY, GILBERT MARTIN.** The effects of sensory-motor training on body image in retardates. *Dissertation Abstracts International*, 36(5):2741A, 1975. 149 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,987.

The effectiveness of sensory-motor training to improve body image in severely and moderately MR institutionalized adolescents was investigated, as well as the generalizability of such training to intellectual, social, and perceptual-motor skills. Twenty-four severely (IQ 20-35) and moderately (IQ 36-51) MRs ranging in chronological age from 11 to 17 were randomly assigned to a treatment or a control group. The treatment group received 60-minute sessions 5 days a week for 4 months in integration of primitive postural reflexes, appropriate reaction to vestibular stimulation, and maintenance of balance between tactile subsystems; form perception and awareness of auditory stimuli-bilateral integration; gross motor planning; space perception; direction ability; and fine motor movements. Analysis of body image measures indicated that the treatment method did not significantly improve the body image, although 14 of the 15 variables showed increases in favor of the treatment group. No significant differences were found on measures of intellectual functioning, social adaptability, or global perceptual-motor functioning. These findings do not support research proposing the usefulness of sensory motor training in producing constructive body image changes.

Lehigh University
Bethlehem, Pennsylvania

422 **JORDAN, DOUGLAS E.** The effect of visual and auditory feedback on normal and educable mentally retarded subjects. *Dissertation Abstracts International*, 36(5):2699A, 1975. 79 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,795.

Pursuit rotor tracking of normal and EMR subjects was investigated to determine the effect of visual and auditory feedback upon discrete motor skill learning. Sixty-two EMR subjects were matched with an equal number of subjects and randomly assigned to one of 4 groups of 31 subjects. Group 1 EMR received intrinsic visual feedback; group 2

EMR received intrinsic visual feedback and augmented auditory feedback. Normal group 3 received intrinsic visual feedback, and normal group 4 intrinsic visual feedback and augmented auditory feedback. Regardless of the type of feedback, normal subjects were significantly superior to MR subjects on the learning task. Augmented feedback had no significant effect on the learning of the task.

University of Georgia
Athens, Georgia

423 **HORGAN, JAMES STEPHEN.** Effects of supplementary auditory and visual feedback on acquisition of stabilometer task by educable mentally retarded children. *Dissertation Abstracts International*, 36(4):2086A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,047.

One hundred male and female EMR children (chronological age 7 to 18 years) were tested during 2 sessions on a stabilometer task to determine the effect of differential feedback strategies which were both supplementary in nature and concurrently presented. Twenty Ss each participated in groups designated as visual/in-balance, visual/out-of-balance, auditory/in-balance, auditory/out-of-balance, and the control group. The first session included the first 3 trials and was used to measure initial performance. The last 3 trials of the second session were used to measure final performance, and the first 6 trials of the second session were used for the treatment portion of the experiment for each of the 5 groups. Significant findings were obtained between groups for both the treatment trials and the second test session. Significant differences in the treatment trials were isolated in the visual/in-balance group, which demonstrated performance superiority over all other groups; also, the auditory/in-balance group demonstrated superiority over the visual/-out-of-balance group. Significant differences in the second test session were isolated again in the visual/in-balance group, which was superior to all other groups; moreover, the auditory/in-balance group demonstrated performance superiority over control Ss. All treatment groups made significant performance gains, while control Ss did not. The results indicated that visual and auditory supplementary feedback, concurrently presented, aid the EMR individual in the performance of a stabilometer task.

424 **RAPP, DONALD WAYNE.** The effects of motor training on a sample population of blind, severely and profoundly mentally retarded males. *Dissertation Abstracts International*, 36(4):2138A-2139A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-21, 290.

Sixteen blind SMR and PMR male experimental group Ss (CA 15-3 to 28-9 years) from a state institution for MRs and 16 blind SMR and PMR male contrast group Ss (CA 14-6 to 38-0 years) from a second state institution were tested for the effects of a motor training program on motor, language, and social development. Presenting and posttesting were conducted using the Awareness Movement Manipulation Posture Index, the Fairview Language Evaluation Scale, and the Vineland Social Maturity Scale. Experimental Ss were trained for 20 weeks, 2 hours per day, 5 days per week, in (1) posture, locomotion, and muscular strength; (2) arm and hand exercises; and (3) body awareness, tactile experience, and kinesthetic experience. Analyses of covariance applied to pretest and posttest data for both groups on the 3 dependent variables with the pretests as the covariates were significant in favor of the experimental Ss and supported their significant improvement in general motor functioning, communication skills, and social skills as compared with the contrast group. Significant correlations were obtained among the posttests on the 3 dependent variables, an indication that the 3 instruments employed were not independent but were measuring related skills. Given the fact that the 3 dependent variables assessed nonindependent, overlapping factors, the efficacy of motor training for the specified sample population was established.

Boston College
Chestnut Hill, Massachusetts

425 **VAN MARTHENS, E.; HAREL, S.; & ZAMENHOF, S.** Experimental intrauterine growth retardation: a new animal model for the study of altered brain development. *Biology of the Neonate*, 26:221-231, 1975.

The effects of experimental intrauterine growth retardation on subsequent fetal development, especially with respect to brain development, were

studied in the rabbit. The rabbit was chosen because of the recent evidence that its period of most rapid brain development is during the time of birth, placing it in the same "perinatal brain developers" category as the human. Experimental ischemia was induced during the last trimester by ligation of spiral arterioles. All animals were delivered by cesarean section. A highly significant decrease was found in brain weight, deoxyribonucleic acid (DNA), and protein content of the cerebral cortex and cerebellum. These findings indicate that vascular insufficiency imposed at this time not only alters brain development but preferentially affects regional brain growth. A comparison of the difference in mean cell size index (protein/DNA) as well as of the reduction in the total cell number (DNA) in the cortex and cerebellum reveals that during the last 5 prenatal days these 2 brain areas have a distinctly different growth pattern. At term the cell number is reduced in the cerebellum to a much greater extent than in the cerebral cortex, indicating that at this time there is a more rapid rate of cell proliferation in the cerebellum in comparison to the cerebral cortex. These findings are in agreement with the theory of increased vulnerability during the brain growth spurt. (31 refs.)

Department of Psychiatry
Mental Retardation Center
Neuropsychiatric Institute
University of California
Los Angeles, California

426 U.S. Education Office. Motor development: from classroom to playground. (Bureau of Education for the Handicapped.) Fain, Gerald S.; and Burkhart, Ernie, eds. 180 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF 76 cents, HC $9.51, plus postage. Order No. ED113897.

A review of educational recreational experience with normal and exceptional children presents perceptual motor terminology, surveys developmental motor patterns and activities used in the motor development programs of the Special Education Department of Prince George's County (Maryland), and describes the University of Maryland Children's Health Developmental Clinic, which incorporates parent education with individualized motor instruction for children with developmental problems. Sample behaviors and activities demonstrate methods for developing such skills as mature social interaction, personal fulfillment, and enhanced amusement, and examples of ongoing program approaches illustrate current methodology. J. Stein reviews relevant research, including the specificity of learning, and implications for the field. (50-item bibliog.)

Bureau of Education for the
Handicapped
U.S. Office of Education
Washington, D.C.

427 **GEIGER, WILLIAM LESLIE**. The perceptual- and gross-motor ability of mentally retarded children. *Dissertation Abstracts International*, (12, Pt. 1):7706A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-12,706.

The performances of 30 MR children (chronological age (CA) 10 to 12 years) in public school classes and 25 CA-matched non-MR children from the public school population were compared on specific motor tasks to evaluate the perceptual-motor ability of MRs and its relationship to their gross-motor performance. Activities included reaction time, movement time, agility run, 20-yard dash, obstacle course, and target hop. The analysis of data indicated significant correlations between intelligence, CA age, reaction time, movement time, 20-yard dash, agility run, obstacle run, target hop, and motor ability of MR children, on the one hand, and non-MR Ss, on the other. Variables indicative of perceptual-motor ability, reaction time, and movement time correlated significantly with the motor ability scores of the non-MR but not of the MR sample. The ranking order for best to poorest mean motor ability scores was non-MR Ss, cultural-familial MRs, Down's syndrome MRs, and organic/physiological MRs. The findings implied that MR children are not homogeneous with regard to motor ability characteristics, and that movement experiences should be provided for MR children on the basis of individual rather than etiologic group ability.

University of Toledo
Toledo, Ohio

428 **NESS, RICHARD ANDREW.** The standardization of the basic movement performance profile for profoundly retarded institutionalized residents. *Dissertation Abstracts International*, 35(9):5908A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-7059.

Validation, reliability, and performance objectives were formulated in order to standardize the Basic Movement Performance Profile (BMPP) with male and female PMR residents from the 10 Texas state schools for MRs. The results obtained from the treatment of data for each objective indicated that all of the basic movement skills represented by a test item on the BMPP were valid and appropriate for measuring the basic movement abilities of PMRs, that test item construction for each item on the BMPP was valid and appropriate for this goal, and that all of the test items demonstrated a correlation of stability high enough to be retained as valid and appropriate measures. Performance level norms for both sexes on the BMPP were established.

North Texas State University
Denton, Texas

429 **VOGEL, PAUL GLEN.** The effect of teacher type and instructional time on the achievement of selected fundamental motor skills by elementary age trainable mentally retarded children. *Dissertation Abstracts International*, 35(9):5913A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-7272.

The influence of teacher type and varied amounts of instructional time on the achievement of the run, underhand roll, overhand throw, and catch by TMR children of elementary school age was studied within the context of a formative evaluation of the I CAN instructional system. The study was conducted using a pre-experimental, one-group pretest-posttest design. The results of the study were determined on a restricted sample. Statistically significant differences were found in student performance within time and teacher type for the run, overhand throw, and catch. For the run, the 2 hour allotment was more effective than the 1-hour allotment, and physical education teachers were more effective than classroom teachers. However, several hours of instruction by classroom teachers were better than a greater number of hours of instruction for the overhand throw and catch, with classroom teachers being more effective than physical education teachers in the low time category.

Michigan State University
East Lansing, Michigan

430 **SHUSHAN, ROBERT DANIEL.** Assessment and reduction of deficits in the physical appearance of mentally retarded people. *Dissertation Abstracts International*, 35(9):5974A-5975A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-5692.

The use of deficits in physical appearance as cues to MR was studied among 60 normal Caucasian adults from a middle- and upper-class community. The reactions of the community representatives were obtained to 8" x 10" black and white photographs of 26 Caucasian male and female adults, 4 of them of normal intelligence and 22 MRs. Of the MR population, 4 had normal appearance; the other MR Ss were 10 with Down's syndrome and 8 without Down's syndrome. After initial photographs were taken of all Ss, appearances of the 18 MRs with deficits in physical appearance were altered with makeup, hair styling, wigs, eyeglass frames and/or sunglasses, and improvements in necklines and facial expressions; these 18 Ss were photographed again so that before and after pictures could be judged by respondents. Analyses of variance indicated that unattended or neglected deficits in the physical appearance characteristics of the faces and heads of MRs may, to a significant extent, serve as cues to their deviancy and cause them to be perceived by residents of a middle- and upper-class community as persons who are of doubtful normalcy or MR. It was concluded that normal female adults may perceive more deficits than their male counterparts. The findings suggest that at least a 70 percent and 50 percent overall reduction in deficits can be achieved for both non-Down's and Down's Ss by inexpensive, appropriate cosmetic therapeutic treatment.

University of California
Los Angeles, California

431 **AUFSESSER, PETER MARK.** Effects of repeated trials on the reliability of physical fitness and perceptual-motor performance scores of institutional mentally retarded subjects. *Dissertation Abstracts International*, 35(1):7101A-7102A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-11,212.

Thirty-six male and female institutionalized MRs (chronological age 12 to 20 years) were tested 3 days a week for 5 consecutive weeks on physical fitness (flexed arm hang, sit-ups, shuttle run, standing broad jump, 50-yard dash, softball throw, and 300-yard run-walk) and perceptual-motor criteria (balance beam, stork stand, ball throw, ball tracking, side step, and over and under). The analysis was conducted using Dayton's repeated measures program. No significant differences were found between physical fitness trial scores, but mean scores indicated that the Ss as a group performed better on the first trial of the short running events but better on the later 3 trials on the rest of the physical fitness battery. On other perceptual-motor items, significant differences were found between trial scores on the stork stand, ball throw, and over and under tests, with performance scores being poorest on the first trial for all items except the stork stand. Time of residence in the institution did not significantly affect any scores, but Ss residing there 9 years or longer had poorer performance scores on all items than Ss with fewer years in the institution. The higher IQ group performed significantly better on the shuttle run and on the stork stand, ball throw, and over and under items.

University of Maryland
College Park, Maryland

432 **BLACK, KENNETH DONALD.** Developing and evaluating cardiovascular fitness measures in preschool normal and mentally retarded children. *Dissertation Abstracts International*, 35(7):4223A-4224A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 74-29,142.

Thirty-three Ss from the Peabody College Demonstration nursery and kindergarten school, 26 culturally deprived Ss from the Demonstration and Research Center for Early Education, and 6 normal and 12 MR Ss from the Institute on MR and Intellectual Development were administered cardiovascular endurance measures. A modified Balke Treatment Test was adopted as the standard of cardiovascular fitness and was compared with chronological age, height, weight, bent-knee sit-ups, 100-yard run-walk, shuttle run, and 3 measures of pulse rate obtained from a step test, the Tuttle pulse ratio, a 2-minute postexercise pulse rate, and the difference between pre-exercise and post-exercise pulse rates. None of the administered tests proved appropriate for MR preschool children or non-MR children under age 5; they were all appropriate for non-MR preschool children aged 5 and over. All measures except the pulse rate increase over resting pulse and the pulse ratio correlated significantly with cardiovascular fitness as measured by the treadmill test. Regression analysis showed only the 100-yard run-walk to be a significant predictor ,of cardiovascular fitness in any combination of variables. Performance increased significantly with increasing CA on the treadmill and 100-yard run-walk. Culturally deprived Ss performed significantly better on the shuttle run and pulse recovery.

George Peabody College for Teachers
Nashville, Tennessee

DEVELOPMENTAL ASPECTS — Mental

433 **MEIER, JOHN H.** Cognitive function: normal development—mental retardation. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 5, pp. 91-108.

Cognitive development, or the human unfolding of the ability to think about past, present, or future experiences or thoughts in order to analyze and solve complex and abstract issues and to achieve new syntheses and understandings of self and the surrounding environment, has been the subject of behavioral and cognitive field theories. Piaget

formulated a theory of intellectual/cognitive development in which the nature of the developmental process is the primary concern. When an individual has ample opportunities for cognitive development and fails to develop appropriately, he is considered to have certain cognitive deficiencies which may result in MR and/or other developmental disabilities. A communication system model is offered for describing and defining various developmental disorders, such as MR, epilepsy, autism, dyslexia, and other related psychoneurological deficits, hyperkinesis, perceptual/sensory disorders, minimal brain dysfunction, and neuroses and psychoses. Each of these disabling conditions can be located at one or more filter points on the intraindividual communications network continuum. (20 refs.)

Office of Child Development
U.S. Department of Health, Education, and Welfare
Washington, D.C. 20013

434 **DE BOOR, MATILDA F.** What is to become of Katherine? *Exceptional Children*, 41(8):517-518, 1975.

The development of an adversary relationship between families of some handicapped children and the systems designed to help children is illustrated by the records of a 22-year-old young woman who was diagnosed as MR in early childhood. A voluminous and detailed file kept by the patient's father testifies to the frustration, anguish, and rage he felt as he dealt with a succession of agencies, hospitals, and professionals; received varying diagnoses concerning the severity of MR (intelligence quotient of the patient fluctuated between 70 and 90); and sought treatment and/or habilitation for his daughter in a variety of facilities, including special classrooms, sheltered workshops, training programs, a residential facility, and a mental hospital. Twenty years of frustration in dealing with the system is punctuated by a recent evaluation which indicates that the young woman is not MR but may suffer from learning disability—a condition rarely recognized during her childhood years.

Waisman Center
Madison, Wisconsin

435 **NEISWORTH, JOHN T.; & GREER, JOHN G.** Functional similarities of learning disability and mild retardation. *Exceptional Children*, 42(1):17-21, 1975.

Although descriptions of EMR and learning disabled children often focus on differences in assumed etiology (genotype), there is no necessary correspondence between the condition and measurable behavior (phenotype). Real or assumed differences in the underlying conditions of the 2 groups may be irrelevant to the analysis and design of instructional programs. When educational objectives are identified as a result of specific skills assessment, considerable overlap between EMR and learning disability problems can exist. A tentative schema of relationships between learning disability and MR illustrates overlap of the classifications with respect to instructional objectives and instructional intervention. Finer analyses of the learning difficulties of the 2 groups will yield a clearer picture of the actual overlap and bring educators closer together in refining and sharing instructional techniques. (18 refs.)

College of Human Development
Pennsylvania State University
University Park, Pennsylvania

436 **CARTER, JOHN L.** Auditory discrimination and training effects for educable retarded children. *Education and Training of the Mentally Retarded*, 10(2):94-95, 1975.

A 2-part investigation studied the relationship between mental maturity and auditory discrimination in 90 EMR children and evaluated effects of general auditory training. Ability to discriminate auditorily increased with intelligence quotient (IQ), MR, and CA. Thirty-two children who were randomly selected and administered remediation 30 minutes per day for 6 weeks showed significant gains over a control group at posttesting. Training dealt with auditory reception, vocal association, closure, and memory, as well as sound blending. Auditory discrimination is directly related to mental maturity, but directed teaching can enhance performance. (1 ref.)

Department of Educational Psychology
University of Houston
Clear Lake City, Texas

437 **KNAPCZYK, DENNIS R.** Task analytic assessment of severe learning problems. *Education and Training of the Mentally Retarded*, 10(2):74-77, 1975.

Performance of individuals with severe learning problems can be assessed through task analytic procedures. This involves the selection of a target task which is broken down into component behaviors and presented separately and sequentially. Tasks can relate to social skills, prevocational training, self-help skills, or communication, with assessment of specific skills, yielding a clear profile of the child's strengths and weaknesses. Assessment procedures can be designed on an individualized basis by those working directly with SMRs, can be used for evaluation of program goals and objectives, and can be applied to demonstrate goal achievement. The task analytic procedure overcomes many disadvantages of formal standardized instruments in assessing SMRs. (22 refs)

Indiana University Training Center
Bloomington, Indiana

438 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Introduction to mental retardation. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 2, pp. 27-34.

MR, occurring in about 3 percent of the United States population, "refers to significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period" (current AAMD definition). It is caused by prenatal factors (infectious diseases, injury, and genetic disorders), perinatal factors (prematurity, anoxia during delivery, and birth trauma), and postnatal factors (mainly head injuries, brain tumors, poisoning, and infections). Depending upon the need, test score, medical, educational, and adaptive behavior age level classifications are used. Various services or programs are available to MRs, including diagnostic centers, social services, day care programs, special education, vocational training centers, sheltered workshops, residential and recreational programs, and special religious services.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

439 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Characteristics of the retarded. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 3, pp. 35-45.

MR persons are set apart from other individuals by such specific characteristics as physical differences, delayed speech development, and emotional temperaments. Characteristics vary greatly according to the cause of MR, the degree of MR, and the availability of learning environments to which an MR child may be exposed. MR preschoolers differ from normal children in the rate at which they acquire skills, in their level of performance at each succeeding chronological age, and in the quality of their performance. In the elementary school years, EMR children (IQ 50 to 75) are distinguished from TMR children (IQ 25 to 49). EMR children have difficulty thinking abstractly and sorting problems, conceptualizing, generalizing, concentrating, and incidental learning; they also have delayed and retarded language development, perceptual problems, and characteristic self-devaluation, overaggressiveness, and low tolerance for frustration. TMR children typically are characterized by inadequate habits of personal behavior, inefficient communication skills, clumsy and awkward body control, unacceptable work habits, poor adjustment to social situations, and resistance to following directions.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

440 **STRIFFLER, NANCY.** Language function: normal and abnormal development. In: Johnston, R. B.; & Magrab, P. B., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 4, pp. 75-90.

A communication model presenting a view of prelinguistic, nonsymbolic functions as they relate to higher level linguistic behaviors is effective as a means of viewing normal and abnormal speech and language development. The channels of communication progress through 3 distinct yet interrelated levels. The receptive channel progresses from sensory awareness (level 1) to perception (level 2)

to symbol comprehension (level 3). The expressive channel progresses from motor projection (level 1) to motor ideation (level 2) to symbol formulation (level 3). The overlapping and interdependency of the developmental stages of speech and language functioning and the dependent relationship between receptive and expressive channels are seen in children as early as the prelinguistic level. Breakdowns in the normal speech and language process can occur at any level and in either channel. Determination of a specific child's level of speech and language development can be accomplished only through knowledge of language development, together with a detailed case history, physical examination, direct observation, and specialized formal and informal testing.

Georgetown University School of
Medicine
Washington, D.C. 20007

441 **STOTT, THOMAS W.** Attention and concentration in trainable mentally retarded children. *Resources in Education (ERIC)*, 11(2):89, 1975. 70 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76. Order No. 116539.

The effectiveness of a program in attention and concentration training with 7 TMR persons 8 to 20 years old was evaluated. Pre- and posttest data were obtained on the Maze-trial test, a picture discrimination test, buttons test, and object sort test. Results suggested that the more severely MR Ss worked more diligently as a result of training, that the group demonstrated an increased ability to observe differences in objects, and that Ss increased their ability to form concepts on shape, color, and size.

442 **SNYDER, RUSSELL D.** How much reading? *Pediatrics*, 55(3):306-308, 1975. (Editorial)

Since the reading process is an extremely complex normal function, it is not surprising that many persons of otherwise normal intelligence have problems of some degree in reading. Reading should not be confused with intelligence, nor does reading always involve learning. Neurological examination does not specifically test the parts of the brain dealing with reading. For most children whose reading skills are below other cognitive abilities, the reading disability probably represents simply a developmental delay, and the problem will ultimately be at least partially outgrown regardless of remediation. Except in the case of diffuse brain damage, it is extremely uncommon for the child with reading difficulty to be a total nonreader as an adult. Early identification of reading disabilities (prior to first grade) may run the risk of ignoring variation in the physiological readiness to acquire reading skills. Labeling children as poor readers and predicting poor performance subjects these children to all the risks of the self-fulfilling prophecy. Present problems in teaching reading skills could be minimized if: the relative importance of reading could be deemphasized and the child offered options to use whatever channels he found most comfortable for learning; reading as a skill could be introduced later in the school curriculum for some children; and a more soundly based statistical definition of abnormal could be utilized in assessing students and planning teaching programs. (14 refs.)

Departments of Pediatrics and
Neurology
University of New Mexico School of
Medicine
Albuquerque, New Mexico

443 **HAKA-IKSE, KATERINA.** Child development as an index of maternal mental illness. *Pediatrics*, 55(3):310-312, 1975. (Editorial)

The physical and mental health of a child depends on provision of adequate physical care as well as on a warm, intimate, and continuous relationship with his mother or mother substitute. Disruptions within the system, such as mental illness in the mother, often result in serious consequences for the child's well-being. Children of mothers with severe depression usually present a common developmental pattern with delays of arrest in language and gross motor and personal-social skills. They are slow in learning to speak, tend to use very little of whatever speech skills they have, and have diminished gross motor activity. These children are inactive, sober, and irritable, and tolerate minor stresses poorly; brief separations from the mother produce intense anxiety reactions. Developmental aberrations are not accompanied by physical or neurological abnormalities, the birth history is normal, and there is absence of

familial MR or gross social economic deprivation. Once the developmental problems of the child are diagnosed as reactive to maternal mental illness, intervention is aimed at reassigning the sick role from child to mother. Referrals for psychiatric case work, marital counseling, or frequent visiting and concrete support by a public health nurse are made according to individual needs. An integral part of the treatment plan is pediatric followup and provision of child-oriented counseling. (5 refs.)

The Hospital for Sick Children
University of Toronto Medical School
555 University Avenue
Toronto, Ontario M5G IX8
Canada

444 **SILVER, LARRY B.** Acceptable and controversial approaches to treating the child with learning disabilities. *Pediatrics*, 55(3):406-415, 1975.

Significant literature in the field of learning disabilities is reviewed in an effort to assist the family physician in providing this guidance. The history of the terms "minimal brain damage," "minimal cerebral dysfunction," "dyslexia," "dyscalcula," "dysgraphia," "congenital aphasia," and "hyperkinetic" is surveyed. Learning problems are held to be primarily neurologically based, not culturally or emotionally based or associated with MR. The best purely descriptive label is perhaps "the learning disability syndrome" or "neurologically-based learning disabilities." Acceptable therapies—special education, psychostimulants and other drugs, and psychotherapy—are described, as well as controversial therapies—neurophysiological retraining, orthomolecular medicine, alpha-wave conditioning, and food additives. The necessity for the physician to deal with the grief reaction of the parents is stressed. (56 refs.)

Department of Psychiatry
Rutgers Medical School
Piscataway, New Jersey

445 **HILL, A. LEWIS.** An investigation of calendar calculating by an idiot savant. *American Journal of Psychiatry*, 132(5):557-560, 1975.

Three mechanisms (eidetic imagery, high-speed calculation, and a substitute compensation for normal learning) suggested by Horwitz and associates as possible explanations for the calendar calculating ability of an idiot savant were investigated. The S, a male born to reportedly normal parents, had a Stanford-Binet I.Q. of 54 but could play 11 musical instrument by ear and had outstanding abilities for calendar calculating. There are no indications in his records as to how or when his abilities developed, although it is clear that he possessed them at the time of his transfer to a second state school for the MR in 1949. No indications of eidetic imagery were found either in direct testing or in auditory or visual testing for digit span. The S's lack of simple arithmetic ability seemed to indicate that he could not calculate at high speeds. The results of a paired-associate task, although designed to take advantage of 1 of his special abilities, indicated that he was unable to learn at a normal rate. The S's calendar calculating skill may have been due to a normal learning process coupled with the ability to sustain the great effort and concentration needed to memorize. He displayed no difficulty in maintaining concentration during hours of testing. The only other remaining explanation is not the ability to calculate days but a rote memory process similar to the memory of adolescents who learn the statistical information pertaining to their favorite sports. (3 refs.)

New York State Institute for Basic
Research in Mental Retardation
1050 Forest Hill Road
Staten Island, New York 10314

446 *The 1976 Directory of Educational Facilities for the Learning Disabled.* Sixth edition. San Rafael, California: Academic Therapy, 1975, 48 pp. Free to members and upon request.

An updated listing of educational facilities offering remedial programs for learning disabled children is provided. Each entry is followed by coded information describing the type of facility, chronological age ranges accepted, sexes accepted, hours of operation, and fee schedules. Interested persons should request a copy of the appropriate facility's brochure and program information and should then send a comprehensive statement concerning the child under consideration to the director of the facility.

447 **MAUSER, AUGUST J.** *Assessing the Learning Disabled: Selected Instruments.* San Rafael, California: Academic Therapy, 1976, 95 pp.

More than 300 assessment tools applicable to the evaluation of children and adults with specific learning disabilities are described. Intelligence; preschool readiness; reading readiness; diagnostic reading; survey reading; oral reading; creativity, vocational, and motor, sensory, and language tests; as well as diagnostic tests of math abilities, are included. The age applicability, time required to administer, and salient features of each test are provided. Most of the tests presented have been standardized and are available commercially.

Northern Illinois University
DeKalb, Illinois 60115

448 **FRAUENHEIM, JOHN GILBERT.** A follow-up study of adult males who were clinically diagnosed as dyslexic in childhood. *Dissertation Abstracts International*, 36(5):2741A, 1975. 151 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-24,240.

Forty males who had been diagnosed as dyslexic in childhhod were tested for reading proficiency and academic achievement in reading, spelling, and arithmetic. IQ scores (WISC) at time of diagnosis were within the normal range (means: verbal, 86; performance, 105; full scale, 94). Mean difference between the verbal and performance scores was 19 points in favor of performance IQ. Subjects remained seriously retarded in reading, with a mean reading grade score of 3.6. Spelling and arithmetic were also deficit areas; spelling was the most seriously impaired area of academic achievement, both at diagnosis and at follow-up. Amount of special reading help was not significantly related to adult reading outcome, but a correlation coefficient of .43, significant at the .01 level of confidence, was obtained between adult reading and both the verbal and full scale IQ. The effects of dyslexia on the lives of subjects was pervasive and influenced all areas of adjustment. Twenty-five subjects held jobs in the semiskilled or unskilled classification, and an additional 7 subjects were unemployed. The needs of the dyslexic are complex, requiring appropriate educational recognition, understanding, and commitment.

449 **PULLIAM, ROBERT.** Child learning disabilities: reported levels of incidence as a function of defining criteria. *Dissertation Abstracts International*, 36(4):2138A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-21, 270.

The literatures of medicine, psychology, special education, and related disciplines were examined for the incidence of child learning disability (LD). Forty reports of LD incidence were found. In them, 24 terms were used to designate categories of LD or analogous conditions. Four studies measured LD in terms of a differential between individual expectancy and actual success in general learning, while 3 used a similar differential for reading only. Four studies assumed neurological impairment, with clinical findings, as primary defining criteria; 3 studies assumed language involvement but did not use specific expectancy measures; and 6 studies used miscellaneous terms and criteria. Twenty reports were estimates. Despite some inconsistency, findings reflected a generally increasing level of incidence as defining criteria were increasingly broad and as the level of severity assumed to be disabling declined. The data suggested a level of incidence around 10 percent for LD defined in terms of neurological impairment or of deficiency related to learning expectancy.

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450 **MYKLEBUST, HELMER R., ed.** *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, 226 pp.

Interdisciplinary approaches to intervention programs for learning-disabled children are emphasized in a comprehensive treatment of research on learning disabilities and the training and services to correct them. Progress in delineation of the cognitive system approach to assessment and remediation is discussed, with the role of each hemisphere in cognition as it relates to the psychoneurology of learning disabilities serving as a frame of reference. The status of school remediation programs, the nature of the spatial world of the child and its implications for learning disabled children, and the association between learning disabilities and social maladjustment in adolescence, including juvenile delinquency, are also considered.

CONTENTS: A Learning Systems Approach to Intervention (Killen); Learning Disabilities: Intervention Programs in the Schools (Pihl); The Spatial World of the Child (Eliot); Intervention Through Psychological and Educational Evaluation (Perlman); Nonverbal Learning Disabilities: Assessment and Intervention (Myklebust); Learning Disabilities, Youth and Delinquency: Programs for Intervention (Poremba); Pharmacological Intervention (Forman); Reading Epilepsy, Musicogenic Epilepsy, and Related Disorders (Forster); Parental Intervention (Baldauf); Cerebral Dominance, Learning, and Cognition (Kinsbourne).

451 **KILLEN, JAMES R.** A learning systems approach to intervention. In: Myklebust, H. R., ed. *Progress in Learning Disabilities*. Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 1, pp. 1-17.

Intervention for learning disabilities (LDs) that is based in psychoneurological learning systems will permit a level of understanding and application not previously realized. Psychoneurological learning systems, referring to cognitive processes that are grounded in neurological operations and that manifest themselves in psychological concomitants, form complete patterns for central nervous system processing of sensory information. The hierarchy of learning experiences that is applicable to the analysis of cognitive systems includes the cognitive levels of perception, imagery, symbolism, and conceptualization and is completed by cybernetic processes. Before the constructs of psychoneurological learning systems can be applied to intervention approaches for LD children, ongoing research in the areas of hemispheric and neurosensory systems and cognitive development is required. A learning systems approach is relevant to the education of LD children in the modes of assessment and educational programming. This approach permits direct extrapolation of cognitive processes to teaching, learning procedures, and methods, and educators can be provided with a statement of remedial goals as a basis for the formulation of specific programs and methodology. (28 refs.)

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452 **PIHL, ROBERT O.** Learning disabilities: intervention programs in the schools. In: Myklebust, H. R., ed. *Progress in Learning Disabilities*. Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 2, pp. 19-48.

Concomitant with the variations in definition of learning disability (LD) are the differences in its underlying models, with the model one adopts tending also to determine the type of intervention he prefers. The physiological, social-environmental, and developmental models present an array of contradictory ideas concerning the basic nature of LD. Depending upon the perceived cause of LD, different diagnostic and treatment programs are advocated. The teacher plays an important role in various intervention programs, among them, behavior management, academic remediation, perceptual training, gross-motor coordination intervention, and behavioral prophylaxis. Implementation of any of these procedures constitutes a real problem. The 3 primary obstacles encountered in attending to the LD child are lack of a unified professional perspective, nonacceptance or only grudging acceptance of nonprofessional therapists, and the bureaucratic structure of most school systems. (158 refs.)

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453 **ELIOT, JOHN.** The spatial world of the child. In: Myklebust, H. R., ed. *Progress in Learning Disabilities*. Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 3, pp. 49-66.

Research indicates that the study of spatial learning could eventually contribute significantly to the understanding of cognitive development in general and to learning disability (LD) in particular. The Cattell and Horn theory of intelligence, research on egocentrism, and the study of pictorial perception are research efforts illustrative of the space-in-everything level of attribution. For each of these examples, space is an underlying dimension that brings together or potentially unifies the understanding of visual phenomena. If space is regarded as a defining attribute of our visual surroundings which we use, in different degrees of emphasis, to describe events, 4 levels of attribution or emphasis can be

traced, proceeding from a space-in-nothing emphasis through a space-in-everything emphasis. There is a need to be more precise about the definition of space before different kinds of spatial learning or LD can be identified. Eventually, the concern with definition of space must be connected with spatial behaviors. While all the implications for LD are not known at present, the educator and the psychologist may benefit from recognizing the significance of the spatial attribution construct for diagnosis and remediation of learning disabilities, especially if it is assumed that the LD child may have a deficit at one or more attribution levels. (43 refs.)

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454 **PERLMAN, SUZANNE M.** Intervention through psychological and educational evaluation. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 4, pp. 67-83.

The assessment approach to intervention programs for learning disability (LD) children is based on the premises that assessment provides supportive insight for parents and children while giving teachers a plan for diagnostic-remedial teaching and that it leads naturally to and is modified by prescriptive or clinical teaching. Intervention through psychoeducational evaluation assumes a dynamic form. It begins with diagnostic consideration of cognitive abilities and deficits and flows easily into remediation, which in itself provides a structure for further and continuous assessment. Moreover, through clinical teaching, development, growth, and additional evaluation, new hypotheses and intervention programs are formulated. This process provides a plan for meeting the LD child's subtle, critical needs for individualized teaching.

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455 **MYKLEBUST, HELMER R.** Nonverbal learning disabilities: assessment and intervention. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 5, pp. 85-121.

Since children with nonverbal learning disabilities (LDs) have been identified and planned for only recently, objective test procedures designed specifically to evaluate nonverbal deficits remain limited, and intervention programs have not been established. Some psychometric tests can be utilized to screen large groups and to assess individuals. The severe handicap of these children necessitates a broad treatment-intervention plan and interdisciplinary cooperation. Medication for seizure control and related health problems and parental guidance and training are both primary concerns. The psychologist and clinical teacher can provide a detailed explanation of the child's LD and outline ways in which parents can assist with essential aspects of remediation, including how they can help the child learn to play games, tell time, dress himself, and understand the actions of others. More specifically, the teacher's role is to assist the child in learning body parts and body orientation, the meaning of the actions of others, the meaning and concepts of time and direction, maps, blueprints and floor plans, and the relative meanings of size, weight, height, and speed. The teacher must also assist in developing the child's self-care skills. Psychologists must recognize that it is not perception per se that is disturbed. The child cannot gain significance beyond perception, and the challenge lies in assisting him at this level. (41 refs.)

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456 **POREMBA, CHESTER D.** Learning disabilities, youth and delinquency: programs for intervention. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 6, pp. 123-149.

Although it has been made clear that juvenile delinquents preponderantly exhibit learning disabilities (LDs), the clinical task of the rehabilitation of these youths has not yet been specified. During the child's life and the first years of school, society's responsibility lies in prompt diagnosis and remediation of the deficits, both of which are easily accomplished with present knowledge and

efforts. The problems of LDs are compounded in the secondary schools, however, by difficulties in evaluation, acceptance and/or lack of knowledge by school administrators, lack of concerted effort, lack of guidelines for good programming, and by secondary problems developed by the youths. Rehabilitation, therefore, is oriented towards amelioration or compensation, rather than eradication, and the total child and his adjustment problems must be addressed. Intervention becomes a monumental task and is the responsibility of the community as well--through legislation, financial support of remedial education, vocational training, job opportunities, and through its business and industrial concerns. (35 refs.)

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457 **FORMAN, PHILLIP M.** Pharmacological intervention. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 7, pp. 151-160.

Pharmacologic intervention in the management of children with learning disabilities (LDs) involves consideration of the target, rationale, methodology, and effects of treatment. The drugs which appear most effective are those that influence the primary organic disturbances of attention and/or arousal. With the exception of the occasional indication for anticonvulsants, trials of drug therapy in LD children should be directed at managing behavioral disturbances. CNS stimulants, which appear to act through enhancing or stimulating the central neurotransmitter functions of norepinephrine and dopamine, are the best known, most widely used, and generally most beneficial drugs prescribed for these children. The behavior disorders of arousal and attention, and perhaps the affective difficulties observed in some children with LDs, may be secondary to disorders of catecholamine metabolism in one or more of the neural systems, especially in the reticular activating and limbic systems. The physician must be cognizant of the common and/or significant side effects of any drug he is prescribing. Until more information is collected regarding growth, the presently accepted schedules for the intermittent use of stimulants in children should be maintained. (13 refs.)

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458 **KINSBOURNE, MARCEL.** Cerebral dominance, learning, and cognition. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 10, pp. 201-218.

Evidence clearly is lacking for the propositions that the laterality of language representation has any bearing on language performance, or that laterality is the end point of a developmental process in which the locus of language representation progressively constricts its territory. Thus, it becomes meaningless to support and further remedial programs that strive to hasten that hypothetical developmental process which, in fact, does not occur. This conclusion holds true not only for cases of delayed language development but also for cases of delayed development of any lateralized skill. Studies have demonstrated that many manifestations of reading disabilities of selective types are attributable to a rather general delay in left-hemispheric maturation, a phenomenon which must be considered in terms of the maturation of the lateralized neuronal equipment itself. Longitudinal studies of children with respect to lateralization of orienting and of language representation remain to be carried out. (72 refs.)

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459 **PETERS, J. E.; ROMINE, J. S.; & DYKMAN, R. A.** A special neurological examination of children with learning disabilities. *Developmental Medicine and Child Neurology*, 17(1):63-78, 1975.

Eighty-two boys 8 to 11 years old with learning and/or behavior problems were assessed on an 80-item neurological test. Ss, who were of average intelligence and had no gross neurological deficits, scored significantly lower than controls on 44 items. At least 26 of the items which distinguished between the groups entailed motor awkwardness. There was a decrease in the incidence of the special neurological signs in learning disabled children as age increased. When 10- and 11-year-

olds were compared with controls, only 11 items significantly discriminated between the 2 groups. Findings are attributed to a delay in motor development in children with learning disabilities which may result from later neurological maturation. (32 refs.)

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460 **MATTIS, STEVEN; FRENCH, JOSEPH H.; & RAPIN, ISABELLE.** Dyslexia in children and young adults: three independent neuropsychological syndromes. *Developmental Medicine and Child Neurology*, 17(2):150-163, 1975.

One hundred and thirteen Ss (8 to 18 years old) referred for evaluation of learning and behavior disorders participated in a study to identify causal factors in dyslexia. After neurological examination, Ss were divided into 3 groups: brain damaged who could read, brain damaged who were dyslexic, and non-brain-damaged who were dyslexic. On a battery of neuropsychological tests, there were no significant differences between the 2 dyslexic groups. However, 3 syndromes were found among the majority of the dyslexics: language disorder, articulation and graphomotor discoordination, and visuo-perceptual disorder. A clinical description of each syndrome is given. Findings support the hypothesis that dyslexia is caused by multiple independent defects in higher cortical functioning and suggest a rationale for the development of treatment programs specific to each syndrome. (38 refs.)

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461 **GOTTLIEB, MICHAEL C.; & DICKEY, DIANE F.** Spatial orientation ability in learning disabled children: effects of plane and relative position. *Resources in Education (ERIC)*, 11(3):67-68, 1976. 21 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113885.

In an investigation of the effect of mirror-image and aligned relative positions with learning disabled children, 30 learning disabled and 30 normal Ss (CA 6 and 8 years in each group) were given a task in which they were required to match their "horseshoe" to that of the examiner. Twenty-four random presentations consisted of 8 combinations of up-down or left-right orientations in mirror-image or aligned relative positions. The findings indicated that mirror-image relative position was significantly more difficult for all Ss than the aligned position, with learning disabled Ss making significantly more errors than normal Ss. No difference was found between 6-year-old Ss in both groups, but 8-year-old learning disabled Ss made significantly more errors than their normal counterparts.

462 U.S. Education Office. *The comprehension and production of interrogatives in the language of normal and retarded children: a review and analysis. Occasional Paper No. 32.* (Bureau of Education for the Handicapped.) 88 pp. Hesse, Kathy. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $4.43, plus postage. Order No. ED113887.

Questioning behavior in the language repertoire of MR children has a similar but delayed course of development in comparison with that of normal children. Competence and performance models illustrate the role of questions, particularly WH questions, in terms of semantics and pragmatics in adult language and receptive and expressive abilities in children's language. Research on the effects of questions on learning and early language development has included important parent-infant interaction analyses. Studies in the literature have implications for language intervention, including the use of appropriate types and levels of questions to promote recall or language stimulation.

463 **WIIG, ELISABETH H.; & SEMEL, ELEANOR M.** Language production deficits in learning disabled adolescents. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):66-67, 1976. 16

pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113876.

Language production deficits were evaluated in 32 learning disabled adolescents by means of a battery of subtests containing tasks sensitive to language production difficulties in cognition, convergent and divergent production of semantic units, word retrieval, and retrieval of syntactic structures. The results indicated that the speech characteristics of the Ss were close to the norm, except that phrase length was short, and the simple declarative grammatical form was used disproportionately. The data also showed that Ss were significantly deficient in the ability to retrieve accurate verbal opposites, to label pictorial presentations, to name foods, to formulate sentences, and to define words. The findings suggested that oral language problems and productive language deficits in younger learning disabled children may persist into adolescence and supported the existence of a relationship between productive language deficits and delays in development of cognition and retrieval of verbal and syntatic elements.

464 **REED, J. C.; & AXELROD, PENNY.** The neuropsychological evaluation of children with learning disabilities. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):66, 1976. 12 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113869.

The Halstead-Reitan Neuropsychological Tests are utilized in the evaluation of children with learning disabilities. These tests are based on a combined appraisal of 4 methods of inference: Level of performance, ratio scores (measuring the discrepancy between overlearned and seldom practiced behavior to infer the presence of brain injury), pathognomonic signs (such as aphasia), and right versus left comparisons. Among the specific components of the battery are the category test, tactual performance test (measuring time, memory, and localization), speech sound perception test, and tactile form recognition test.

465 **ROSEN-WEBB, SARAH.** The learning disabled child in the British progressive school setting. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)* 11(3):66, 1976. 21 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113871.

The school program at a British progressive establishment offers small group instruction based on individual needs. The case studies of 2 learning disabled adolescents illustrate the benefits derived from the program.

466 **SEMEL, ELEANOR M.; & WIGG, ELISABETH H.** Language processing deficits in learning disabled children and adolescents. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 197.) *Resources in Education (ERIC)*, 11(3):66, 1976. 18 pp. Available from ERIC Document Reproduction Service. Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113872.

The results of personal research and studies in the literature specify auditory language processing deficits associated with learning disabilities in children and adolescents. The data indicate that learning disabled children exhibit delays in the acquisition of morphological and syntactic rules, delays in logical growth, short-term memory deficits for verbal material, and heavy dependence upon semantic aspects in language processing.

467 **THOMPSON, M.** A pilot instrument of dyslexic-type language difficulties: the Aston Index. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):66, 1976. 7 pp. Available

from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113873.

The Aston Index is a pilot instrument designed for screening dyslexic-type language difficulties in young children. It consists of 3 forms to test children at 3 stages of development, represents an integrated approach, and includes well-known items from various sources. The specific components of the Index cover general, underlying ability (such as copying geometrical designs), family history (such as laterality), and performance (such as visual sequential memory).

468 **NEWTON, MARGARET A.; & THOMSON, MICHAEL E.** Dyslexia as a phenomenon of written language. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):65, 1976. 12 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113865.

A review of the nature of dyslexia within the context of neurological and educational processes and the characteristics of a script system presents dyslexia as a primary difficulty based on the incompatibility between the written language system itself and the intrinsic developmental skills of an individual's perceptual motor system. A case history of a typical dyslexic child is illustrative of the growth patterns and learning disabilities of individuals with this handicap. An interface exists between the language system, with its rule-governed structure, and maturational factors, including unidirectional sensory and motor modes of perceiving. The incidence of dyslexia is related to the probabilities of individual differences in the lateralization of brain function.

469 **PITTMAN, BETTIE R.** Using tests as the key to diagnosis and remediation of of reading disabilities. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):65-66, 1976. 11 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76 plus postage. Order No. ED113867.

Both standardized tests and behavioral principles can be used effectively for the in depth diagnosis and remediation of reading disabilities. In the case of an 11-year-old girl, analysis of test results was used to resolve conflicting appraisals of reading abilities, and behavioral management methods were employed to remediate weak skill areas.

470 **JACOBS, JACQUELINE E.; & SACATSH, JEAN.** Kindergarten diagnostic assessment of learning style. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):64, 1976. 11 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113857.

A program for identifying potential learning problems and learning styles was conducted with 131 kindergarten children through assessment of global intelligence, gross and fine motor skills, visual perception skills, auditory perception skills, speech and language development, social skills, alphabet recognition, and number concepts. Standardized tests and informal assessment measures were used in the screening program, and 8 testing stations were required. Organization of the testing program also involved a professional staff of 3 social workers, 2 psychologists, 3 speech therapists, and 1 learning disabilities teacher as well as 20 volunteer parents or graduate students. The program identified 5 groups of children ranging from those deficient in gross motor or language experiences to those ready for the prereading program.

471 **KASS, CORRINE E.** A theoretical context for handicap in learning. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975). *Resources in Education (ERIC)*, 11(3):64, 1976. 13 pp. Available

from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113858.

A theory of learning handicaps based on psychoeducational and developmental criteria places restrictions on the usefulness of remediation. Teachers have a tendency to continue remediation beyond an effective level. Remediation is most successful when the functional disability is diagnosed within the critical age range (sensory orientation, 0-3 years; memory, 3-7 years; re-cognition with an emphasis on vocabulary, 8-11 years; synthesis, 11-13 years; and communication, 14 years and older). The existence of 5 task requirements such as attending to the task, attaching labels to the task, and expressing the task activity is proposed. The term dyssymbolia should be used to describe the handicap in dealing with symbols. Deviance, the possibility of normal achievement, the persistence of the handicap into maturity, and an etiology found within developmental dysfunctions are the criteria used to define the condition.

472 U.S. National Institute of Education. The target groups: description of learning disabled and normal subjects participating in prototype evaluation studies. Jones, R. Wayne. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 11 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113859.

The characteristics of 60 learning disabled and 60 normal children (CA 8 to 11 years) participating in the Georgia Reading Research Program were compared. The target group consisted of learning disabled children with deficits in the psychological process of ordering/sequencing and with instructional reading levels one or more years below their expected grade placement levels; these children attended special classes. The learning disabled reference group consisted of children who were average or above average in ordering/sequencing abilities, were reading within 6 months of expected grade level, and were enrolled in regular classes. The Wechsler Intelligence Scale for Children Sequencing Triad and the Wide Range Achievement Spelling Test were employed to assess Ss' deficits. Specific curricular treatments designed to facilitate reading achievement were evaluated.

473 **KUMAR, K. V.; & SAROJ, S. K.** Effects of induced success and failure on learning and retention disorders in children. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):65, 1976. 7 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113860.

The performances of 45 normal and 45 slow-learning junior high school students were compared on a task of original learning and relearning of paired associate responses as a result of induced success or failure following each response. Ss were required to pair stick figures with consonant trigrams and were then told their performance was either correct or incorrect, depending upon the treatment condition assigned. Type of S (normal or slow learner) x treatment condition interaction was not found to be significant in any of the analyses employed.

474 **FRIEDMAN, RONALD J.** The young child who does not talk: observations on causes and management. *Clinical Pediatrics*, 14(4):403-406, 1975.

Several factors which contribute to the delayed appearance or absence of speech in preschool children are discussed from the point of view of developmental psychology. Most normal children begin to walk before they talk, and, although exceptions are numerous, it appears that speech development normally slows when motor progress is most rapid. The most common cause of delayed speech development or absence of speech is MR. A mental age of 18-24 months must be reached before a child is able to talk. A moderately MR child will approach 5 years of age before reaching this level of development. The severely emotionally disturbed child will exhibit bizarre or unusual speech patterns, rather than the total absence of speech of MR. Demonstrable central nervous

system impairment will also cause difficulties in speech production; these children are properly called "aphasic" and have clearly lost some or all language skills because of traumatic brain injury. A child who does not speak but has no speech or language disorder or physical defect of the speech-producing mechanisms, and is not aphasic or deficient in general intelligence, is "electively mute." Delay in speaking in a 2-3-year-old child should not be ignored in the hope that the child will grow out of it. Intelligent diagnostic study, a program of language stimulation, normal verbal interchange between parents and child, counseling with the parents, and neurologic, psychologic, or psychiatric evaluations are advised for every child with delayed speech. (3 refs.)

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475 **RAMIG, CHRISTOPHER J.** The Reading Miscue Inventory: a promising approach to diagnosis of the reading-disabled. *Clinical Pediatrics*, 14(4):326-334, 1975.

The Reading Miscue Inventory is a novel approach to diagnosis of the reading disabled through qualitative miscue analysis, based on a psycholinguistic model of reading which posits the use of 3 cue systems available in printed language—graphic, syntactic, and semantic—to sample, anticipate, and assimilate the material which is read. Underlying the RMI are assumptions related to the reader's knowledge of language, the reader's background and experience, the author's language patterns and past experience, and the interaction between the author and reader. When using the RMI approach to diagnosis, the examiner listens to a student's oral reading, uses 9 criteria (questions) to analyze deviations (miscues) from the print, and obtains a profile or inventory of the reader's strengths and weaknesses with respect to his ability to apply language knowledge and cognitive strategies to the reading material. Because few insights into the child's ability to use the psycholinguistic systems are yielded by scores on traditional assessment instruments, the RMI, which yields such qualitative information, provides reading specialists with the material to develop remediation on an individual basis. (6 refs.)

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476 **VOGEL, MURIEL R. LAUFE.** The effect of a program of creative dramatics on young children with specific learning disabilities. *Dissertation Abstracts International* 36(3):1441A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-18,878.

The influence of a creative dramatics program on improvement of positive social traits and social adjustment as well as the reading ability of second and third grade children with learning disabilities was examined. Sixty children were assigned at random to experimental (creative dramatics) and control (no special program and story-telling program) groups. The Vineland Social Maturity Scale, the California Test of Personality, and the Metropolitan Achievement Test (Reading) were used to measure positive social traits, socialization, social adjustment, and reading ability. After 12 weeks of participation in the study, the 3 groups showed no significant differences among posttest mean scores on positive social traits, socialization, and reading ability. Children participating in the 12-week creative dramatics program scored significantly better on social adjustment than the group participating in no special program but not significantly better than he storytelling group. The obtained data suggested that the study be repeated and that standardized achievement tests such as the Metropolitan (Reading) not be used with children with learning disabilities.

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477 **CROW, T. J.; & MITCHELL, W. S.** Subjective age in chronic schizophrenia: evidence for a sub-group of patients with defective learning capacity? *British Journal of Psychiatry*, 126:360-363, 1975.

Subjective age reports by 237 male long-term inpatients, diagnosed as schizophrenics, revealed that more than one quarter had a severely disordered concept of their own age. Interviews indicated that approximately 25 percent of the patients believed themselves to be at least 5 years younger than they actually were; 12 percent believed themselves to be within 5 years of their age at admission (although they were an average 28 years older than that), and 5 percent believed

themselves to be within 1 year of their age at admission. These findings may identify a subgroup of severely incapacitated patients who are deficient in their ability to acquire new information. (8 refs.)

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Harrow, Middlesex HA1 3UJ, England

478 **VELEZ-SERRA, DAMIAN.** Effects of extraneous information on the solving of arithmetic word problems by the Spanish-speaking mentally handicapped. *Dissertation Abstracts International*, 36(2):822A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-16,525.

Thirty Spanish dominant EMR students enrolled in special classes (mean CA 13.4 years) were tested for the influence of extraneous and nonextraneous information on the solution of arithmetic word problems. Problems were presented in Spanish or English; 24 problems were addition, and 24 were subtraction. Extraneous information was included on 12 problems in each language. Analysis of variance was employed. The results revealed a statistically significant difference between problem solving performance on extraneous vs. nonextraneous information ($p<.001$) and between problem solving performance at 3 vocabulary levels ($p<.001$).

University of Connecticut
Storrs, Connecticut

479 **NADLER, BARBARA T.** Effects of varying stimulus characteristics on the logical problem solving behavior of normal six year olds and educable retarded adolescents. *Dissertation Abstracts International*, 36(2):820A-821A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-17, 360.

Sixty noninstitutionalized EMR adolescents (CA 15.54 years; MA 9.43 years; IQ 111.82) and 60 normal 6-year-olds (MA 7.27 years; IQ 111.82) were observed for discrimination learning behavior and rule-governed behavior. Fifteen Ss from each group were assigned randomly to 4 conditions of a 2-pattern task; meaningful stimuli were presented with or without extraneous information, and nonmeaningful stimuli were presented with or without extraneous information. A 3-pattern criterion task required Ss to uncover 2 or 3 sources of information and to identify which of 3 designs would be revealed if all 3 sources of information had been uncovered. Ss performed significantly better on the 2-pattern task when stimuli were presented without extraneous information, and their performance on this task was significantly better than that on the criterion task. No group performed at a better than chance level on the criterion task, and only Ss presented with nonmeaningful material without extraneous information did significantly better than chance on the 2-pattern task. The results revealed a general absence of rule-governed behavior and hypothesis-testing strategies in young children and EMR adolescents. Highlighting important perceptual features and eliminating extraneous information improved discrimination learning.

Rutgers University
New Brunswick, New Jersey

480 **HAHN, GERRY E.** A comparison of the academic performance of learning disabled children when their parents participated in a structured or informal parent program. *Dissertation Abstracts International*, 36(2):818A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-17,559.

The short-term (10-week) effects of structured and informal parent instruction on the reading, spelling, and math achievement of 98 learning disabled children was studied. A long-term (2-year) follow-up investigation also was conducted on the reading results of a random sample (10 in each group) of children whose parents attended more than 3 parent instruction sessions and children whose parents were not involved in either parent program. Three separate 10-week instruction sessions were conducted for parents of 24 Ss in Group I (structured) and parents of 40 Ss in Group II (informal). Parents of 34 Ss in Group III were not involved in either program. During the 10 weeks, all Ss were assisted individually in reading by their teachers in all 3 groups and by their

parents in Groups I and II; there was no parent involvement in the subjects of spelling and math. Significant differences in the adjusted gain mean reading scores of Ss appeared when the parents of Group I or Group II Ss attended more than 3 parent instruction sessions. There was no significant difference between the structured or informal parent sessions. No statistically significant difference was found between the 3 groups' adjusted gain mean spelling and math performance on the Wide Range Achievement Test or in the reading achievement of the 3 groups after 2 years. The results support a need for some type of maintenance program for parents of children with learning disabilities.

University of Kanasas
Lawrence, Kansas

481 **COHEN, MICHAEL JAY.** Diurnal temperature cycles and the performance of cerebral palsied children on some measures of cognitive abilities. *Dissertation Abstracts International*, 36(3):1430A-1431A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,191.

The possible effect of selected metabolic activation levels on performance on certain tests of cognitive abilities was studied with 21 cerebral palsied boys and girls (CA 5.0 to 14.8 years, IQ 53 to 116), predominantly spastic quadraplegics, living in a residential school in New Jersey. Specifically, the effect of an intermediate level of activation on facilitation of performance on 3 tasks measuring nonmotor cognitive abilities was investigated. After each S's specific diurnal temperature cycle had been established within a school day, a battery of 3 tests (the Auditory Sequential Memory and Visual Association subtests of the Illinois Test of Psycholinguistic Abilities and the Birch and Belmont Extended Test of Auditory-Visual Integration) was administered at his high, intermediate, and low levels of activation. The cerebral palsied children demonstrated no significant improvement in earned scores at their intermediate level temperature times. The findings do not support the application to cerebral palsied populations of the theory that activation (as defined in this study) up to a point facilitates performance and that beyond that point performance remains the same or deteriorates. Apparently, the selected tasks, considered nonmotoric in nature, took on a motor component for the study population.

Columbia University
New York, New York

482 **STEINKAMP, MARJORIE WALKER.** Relationships between task-irrelevant environmental distractions and task performance of normal, retarded hyperactive, and minimal brain dysfunction children. *Dissertation Abstracts International*, 35(12, Pt. 1):7730A-7731A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-11,675.

Thirteen minimal brain dysfunction (MBD) children, 9 MR hyperactive children, and 11 normal children, all with a mental age of 7 years, were individually given 4 representative academic tasks under selected conditions of distraction. No group performed better on any task when placed in a distraction-free, beige-colored cubicle. MBD children tended to respond to some conditions of distraction on 2 tasks but tolerated distraction as well as normal children on the other 2 tasks. The results indicated that cumulative deficit is already pronounced in MBD children at the second grade level.

University of Illinois
Urbana-Champaign, Illinois

483 **ISSAC, JOHN FRANCIS, JR.** A comparison of institutionalized and non-institutionalized intellectually retarded pupils on acquisition of basal reading skills. *Dissertation Abstracts International*, 35(10):6541A-6542A, 1975. Available from Xerox University Microfolms, Ann Arbor, Michigan 48106. Order No. 75-8164.

The level of acquisition in basal reading skills of 27 MR pupils living in the community and 27 MR pupils matched for IQ, MA, and sex who lived in state institutions for MRs was compared. Data were Ss's scores on the 20 skills tests. Analysis of covariance was employed. The findings indicated that institutionalized Ss achieve as well as noninstitutionalized Ss on level of acquisition in basal reading skills and in some case surpass the performance of noninstitutionalized Ss.

484 **BLANTON, LINDA POTEAT.** The relationship of organizational abilities to the comprehension of connected discourse in educable mentally retarded and nonretarded children. *Dissertation Abstracts International*, 35(9):5961A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-5593.

The connection between organizational abilities and the comprehension of written and orally presented connected discourse was studied among 40 EMR children and 40 non-MR children (CA 9 to 12 years). The results of administration of reading and listening comprehension measures supported 6 of the 7 predictions made in the investigation. Among the major conclusions of the study, it was found that EMR children obtained significantly higher recall scores on a distinctive phrasal cueing condition than either a no cueing or a distorted phrasal cueing condition, that EMR high subjective and low subjective organizers did not differ significantly on 3 measures of reading and listening comprehension, and that subjective organization was not related to verbatim recall measures, reading comprehension measures, IQ, or recall performance for EMR Ss. The findings indicated that EMR children do possess the competence necessary for recoding certain types of information when environmental cues are provided which facilitate the use of higher order organizational abilities.

Indiana University
Bloomington, Indiana

485 **BOYD, FLORA MARGUERITE.** The effect of extraneous and non-extraneous information in direct and indirect type problems on the arithmetic verbal problem solving performance of the educable mentally retarded. *Dissertation Abstracts International*, 35(11):7151A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-10,609.

Forty EMR children (chronological age 13.7 to 15.8 years) were administered 64 problems written to a specified format to test the influence of extraneous and nonextraneous information on verbal problem solving. Analysis of variance was employed for the quantitative analysis of data. Ss performed significantly better on the direct type problems than the indirect type, on the subtraction problems than on the addition problems, and on nonextraneous information than on extraneous information. Use of the Newman-Keuls procedure to test mean differences between the various interactions showed that the mean for direct addition, extraneous information was significantly higher than the mean for indirect addition, extraneous information and that the mean for direct addition, nonextraneous information was significantly higher than the mean for indirect addition, nonextraneous information. The findings emphasized the importance of a carefully paced sequential program in verbal problem solving for EMRs, each step being completed satisfactorily before proceeding further.

University of Connecticut
Storrs, Connecticut

486 **MAYER, MARIE LOUISE.** An investigation of the problem solving performance of EMR students with direct and indirect problems using an action sequence presentation of arithmetic verbal problems. *Dissertation Abstracts International*, 35(11):7158A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-10,647.

Three groups of 12 EMR students (Group I, chronological age 13.0 to 14.9 years; Group II, chronological age 15.0 to 16.9 years; and Group III, chronological age 17.0 to 18.9 years) completed problem solving tests containing 10 direct action and 10 indirect action problems for each of the 4 operations of addition, subtraction, multiplication, and division. Analysis of variance was used for each set of problems. The problems presented in an indirect action format proved to be more difficult than the direct action problems. Moreover, problems requiring addition or subtraction for their solution were easier than those requiring multiplication or division, the division process being significantly more difficult for all groups. Mean scores for Group I were generally lower than those for Groups II and III with the exception of the addition process. The results indicated further that all Ss relied on the word cues found in the verbal problems, especially for indirect action problems.

University of Connecticut
Storrs, Connecticut

487 **LYNCH, ELIZABETH; & ROSS, JEANNE.** *Speech Improvement Activity Book.* (NCEMMH [National Center on Educational Media and Materials for the Handicapped] Reprint Series, No. NC-75.902). Revised edition. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1975, 108 pp. $5.85 per 2-part set.

Speech materials intended primarily for use by teachers of TMR pupils are provided. This publication of activities and student worksheets concerning speech sounds presented as a simple unit of response is the companion workbook to *Speech Improvement for the Trainable Retarded.*

South Bend Community School
Corporation
South Bend, Indiana

488 **LYNCH, ELIZABETH; & ROSS, JEANNE.** *Speech Improvement for the Trainable Retarded: A Manual for the Classroom Teacher.* (NCEMMH [National Center on Educational Media and Materials for the Handicapped] Reprint Series, No. NC-75.901.) Revised edition. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1975, 122 pp. $5.85 per 2-part set.

Speech materials intended primarily for use at the elementary level by TMR teachers are presented. The sequence of 39 lessons begins with easily followed physical action, continues with discrimination of gross sounds, and goes on to speech sounds that follow a developmental pattern beginning with the easiest to produce. Sentence patterns are included at the end of each lesson. The lessons are short to provide for a brief attention span and offer simple and repetitive instruction. Concrete objects have been incorporated into introductory lessons and follow-up activities.

South Bend Community School
Corporation
South Bend, Indiana

489 **LUDY, ISA ELIZABETH.** The effects of structure and praise on the use of action concepts in retarded and nonretarded children. *Dissertation Abstracts International*, 35(7):4287A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-129.

Thirty retarded (15 EMR and 15 TMR) children and 15 non-MR children in institutionalized environments were given equivalence formation tasks using structured administration of tasks with praise for reinforcement. The findings indicated that MR as well as non-MR children possess potential for the utilization of functional or action-based concepts, within a framework of structure administration of tasks with praise for performance. The results lent greatest support to the developmental theory.

Southern Illinois University
Carbondale, Illinois

490 **MCDONNELL, MARY KATHLEEN.** The comparative effects of teacher reinforcement of self-esteem and of academic achievement on affective variables and achievement in learning-disabled children. *Dissertation Abstracts International*, 35(7):4287A, 1975. Available from Xerox Univeristy Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1073.

Thirty-nine learning-disabled Ss (CA 10 to 17 years) were divided into 8 subgroups that received teacher reinforcement only for affective improvement (Treatment A subgroups) or only for cognitive achievement (Treatment B subgroups). Four to 6 children in each subgroup were instructed 1 hour daily through individualized lessons based on strengths and weaknesses as revealed by an extensive pretest battery. A multivariate analysis of variance was employed to analyze mean pretest, posttest, and change scores on the Coopersmith Self-esteem Inventory (SEI), the Peabody Individual Achievement Test (PIAT), Coopersmith's Behavior Rating Form, and Burk's School Attitude Survey (SAS). There was no difference between Treatment A and B children's self-concepts as shown by posttest or change scores on the SEI and no difference in the groups' total achievement, as shown by thh PIAT. Treatment B children reported more positive and negative attitudes on the SAS; these children rated

higher in posttest scores on observed esteem behavior, while both groups had positive change scores. Reinforcement for academic achievement was found to be somewhat more productive for learning-disabled children than was reinforcement for self-concept.

University of Southern California
Los Angeles, California

491 **KRAMON, DANIEL LOUIS.** Acoustic and associative variables in the retention of words by children with learning disabilities. *Dissertation Abstracts International*, 35(7):4286A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1065.

Thirty learning-disabled children (CA 114 to 132 months) from educationally handicapped classes and 30 age-matched normal children from regular fourth-grade and fifth-grade classes were shown 20 monosyllabic words and were asked 2 days later to identify each word from a triad composed of the correct word, a rhyme (acoustic variable), and the word most commonly elicited by it in children's word association tests (associational variable). The normal Ss made significantly fewer acoustic errors than the learning-disabled group at the .01 level of confidence. The amount of associational errors was the same for both groups; the number was significantly higher than the number of acoustic errors for the normal group but not for the learning-disabled group. The findings imply that at this age, normal children employ mainly associational retention patterns as opposed to the primarily acoustic retention patterns favored by learning-disabled children.

University of Southern California
Los Angeles, California

DEVELOPMENTAL ASPECTS – Social and emotional

492 **MAGRAB, PHYLLIS R.** Psychosocial function: normal development-infantile autism. In: Johnson, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 3, pp. 57-74.

Psychosocial development is manifest in personality and social behavior, with constitutional and environmental factors serving as the major determinants. It is the interaction of all of these variables that makes the developmental process a complex and unpredictable entity. Endogenous and exogenous variables relate significantly to psychosocial disturbances in children. Cognitive function is related intrinsically to psychosocial development, for those who evidence retarded intellectual development typicaly will suffer accompanying emotional and social immaturity. Autism, a little understood and yet unsolved therapeutic problem of psychosocial development in modern society, is based upon the interplay of both constitutional and environmental factors. Opinions on its etiology range from the dynamics of the parent-child relationship to organic, genetic, and biochemical causes. Treatment is generally unsatisfactory and prognosis guarded. (24 refs.)

Georgetown University School
of Medicine
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493 **KNOBLOCH, HILDA; & PASAMANICK, BENJAMIN.** Some etiologic and prognostic factors in early infantile autism and psychosis. *Pediatrics*, 55(2):182-191, 1975.

Fifty infants and young preschool children seen in a pediatric developmental service and diagnosed as having autism all had evidence of organic disease of the brain; three-fourths had mental deficiency of varying degrees. They did not differ in any respect from a comparison group of patients with central nervous system dysfunction unassociated with the symptom complex of autism. Both

groups of patients had a high incidence of low birthweight, complications of pregnancy and the neonatal period, seizure disorders, and a variety of specific disease entities associated with developmental effects. Follow-up of 40 of the 45 survivors for a mean of 5 years showed that none of the patients had had treatment directed to their psychotic symptoms. However, three fourths had established social responses appropriate to their level of function; those who did not generally were over 3 years of age at the time of their first examination or had initial IQs of 35 or less. The degree of MR was as great or greater at follow-up than it was initially. The hypothesis is offered that autism represents a global aphasia, in which central nervous system dysfunction is so severe that the complexities of social stimulation cannot be integrated or interpreted by the child, so that social interaction only produces further interference with his central nervous system function. (11 refs.)

Department of Peidatrics
Albany Medical College of Union
University
Albany, New York

494 **CLARKE, ROBERT RITCHIE.** Differences in self-concept among students identified as emotionally disturbed, educable mentally retarded, and normal. *Dissertation Abstracts International*, 36(5):2708A, 1975. 123 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,789.

Self-concept was investigated among 90 children 10-13 years old (equal numbers of Black and White) to determine whether there were differences between students identified as Emotionally Disturbed (ED), Educable Mentally Retarded (EMR), and normal before ED and EMR received treatment for their problems. Differences associated with race and sex were also investigated. Instruments used were the Piers-Harris Children's Self Concept Scale, the Draw a Person Test, and the Semantic Differential. Results indicated that normal subjects had significantly more positive self-concepts than Blacks, but Blacks scored significantly higher than Whites on the Semantic Differential potency factor. Differences between the sexes were neglible, except that males viewed themselves as being significantly more active than females. Results suggest that ED and EMR children need special attention focused on improving their self-concepts.

University of Georgia
Athens, Georgia

495 **CLINE, ROBERT EMMETT.** A description of self esteem measures among educable mentally retarded children and their non retarded peers. *Dissertation Abstracts International*, 36(4):2133A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,113.

One hundred EMR children and 4,481 non-MR peers at primary, intermediate, and junior high grade levels were administered the Coopersmith Self Esteem Inventory (SEI). The Kuder Richardson 21 technique was used to assess SEI reliability. High reliability measures were found among the EMR population at all levels. Among EMR Ss, mean SEI scores tended to decrease from primary to junior high levels, while these scores increased from primary to junior high levels for non-MR Ss. Female EMR mean SEI scores were higher than corresponding scores for males at the primary and intermediate levels, whereas males scored higher than females at the junior high level. Mean SEI socres of normal Ss were higher than those of EMR Ss at all grade levels. Mean SEI scores of EMR primary level females were higher, and mean scores of EMR primary level males were lower, than the mean SEI scores of their non-MR peers.

Northern Illinois University
De Kalb, Illinois

496 **KING, PETER D.** Early infantile autism; relation to schizophrenia. *Journal of Child Psychiatry*, 14(4):666-682, 1975.

A significant incidence of double bind relationships (simultaneous verbal acceptance and nonverbal rejection as well as mixed messages in a variety of modalities) was shown in a retrospective study of 12 cases of early infantile autism. The only case with no evidence of a double bind relationship involved a child adopted at 4 months. This case and other observations suggest that the mother's attitude can be a primary reaction to a lack of responsiveness in the child. Symptoms in

the autistic child initially serve a distancing function, later a substitutive function, and still later a retributive function. The excess of autistic boys over girls could be explained by the male's greater genetic tendency to struggle, motivated in the autistic by the infant's desire to escape from his mother. The high socioeconomic level of parents of autistic children may be explained by the same genetic factors that impel the child to escape from the double-bind situation. The relative absence of delusions and hallucinations among autistic children might be explained by the child's blurring his focus of awareness so that he is not vulnerable to the hypnosis from within that causes delusions and hallucinations. If this is the case, childhood schizophrenia could be a connective link between early infantile autism and adult schizophrenia, having aspects of both.

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497 **BARTAK, LAWRENCE; RUTTER, MICAHEL; & COX, ANTONY.** A comparative study of infantile autism and specific developmental receptive language disorder. I. The children. *British Journal of Psychiatry*, 126:127-145, 1975.

Forty seven boys (5 to 10 years old) with a severe developmental disorder of receptive language were examined to determine whether language disorder is necessary for the development of infantile autism. Ss, who had no apparent neurological dysfunction, hearing loss, or MR, were evaluated through standard tests of cognitive, linguistic, and social behavior and standardized interviews administered to parents. Nineteen children were classified as autistic, 23 were diagnosed as having uncomplicated developmental language disorder (dysphasia), and 5 Ss with some atypical autistic features were considered "mixed." Children diagnosed as autistic were shown to have more severe comprehension defect, more extensive language disability, and a defect in the social usage of language. Very few differences among groups were noted in the pattern of nonlinguistic skills. The development of autism seems to be associated with a distinctive type of language disability. (88 refs.)

Department of Child Psychiatry
Institute of Psychiatry
De Crespigny Park
Denmark Hill
London, SE5 8AF, England

498 **FISHER, SUSAN M.** On the development of the capacity to use transitional objects. A case study of an autistic child. *Journal of Child Psychiatry*, 14(1):114-124, 1975.

In therapy with a 6-year-old autistic child, a coca-cola machine was developed as a transitional field between inner fantasy and outer reality. Aspects of the case are highlighted which illustrate the manner in which the patient's interest in coca-cola was used to help him reach out and to counteract his fear of leaving the therapist's office. The patient was allowed as much coca-cola as he wanted as long as he got it from the machine in the treatment center lounge. Through use of the cora-cola machine, the patient learned to reach out; to use his hands in a coordinated manner; to read, to manipulate money, caps, and bottle openers; and to experience physical needs under his own control. Many fluctuating uses of the coca-cola machine were noted. Gradually, it moved from its function as the first external reality emanating from the therapist to a true transitional object. As the child developed his own reality, the coca-cola machine receded into the background of the therapeutic situation. (5 refs.)

58 Commonwealth Avenue
Boston, Massachusetts 02116

499 **COX, ANTHONY; RUTTER, MICHAEL; NEWMAN, STEVEN; & BARTAK, LAWRENCE.** A comparative study of infantile autism and specific developmental receptive language disorder: II. Parental characteristics. *British Journal of Psychiatry*, 126:146-159, 1975.

The role of parental characteristics and environmental stresses in the etiology of autism was explored in a sample of 53 autistic boys (5 to 10 years old) without evidence of MR or neurological disorder. Comparative data were gathered for a matched sample of boys with severe developmental disorder or receptive language (dysphasia). Interview and test data were gathered relating to social characteritics and parental psychiatric

disorder, neuroticism, warmth and demonstrativeness, and sociability. The only significant finding was a larger proportion of middle class families in the autistic group. No differences were found between groups for the other characteristics under examination or with respect to early stresses on the children. No evidence was found that autistic children are more often subjected to stresses in infancy than are dysphasic children or that parents of autistic children are more often socially or emotionally withdrawn. (69 refs.)

Department of Child Psychiatry
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De Crespigny Park
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500 **CAPUTE, ARNOLD J.; DERIVAN, ALBERT T.; CHAUVEL, PETER J.; & RODRIGUEZ, ALEJANDRO.** Infantile autism. I.: A prospective study of the diagnosis. *Developmental Medicine and Child Neurology*, 17(1):58-62, 1975.

Two hundred children consecutively admitted to a habilitation center were administered a behavioral scale developed by Clancy and coworkers (1969) to determine the value of the scale in diagnosing infantile autism. Seven of the 14 behavioral manifestations on the Clancy scale must be present before autism is diagnosed (scale positivity.) Forty-eight of the children examined could be considered autistic when the Clancy scale was used. However, only 1 of these Ss fulfilled the classical criteria for a diagnosis of early infantile autism (Kanner, 1943). A high correlation was found between scale positivity and MR as well as other developmental disabilities (especially learning disorders and hearing loss). These disabilities entail communication and auditory-perceptual dissociation similar to those found in early infantile autism. (5 refs.)

John F. Kennedy Institute
707 North Broadway
Baltimore, Maryland 21205

501 **SCHONEBAUM, REUBEN M.** Autism, stress, and ethology. *Science*, 188(4187):403, 1975. (Letter)

Tinbergen's inference that behaviors, when found to be related to genetic defects, are irreparable or incurable is unwarranted. Environmental factors are too often considered to have a more or less dynamic and fluid relation to behavior, while genetic factors are considered to produce more or less fixed and permanent behavioral deviations. But if a pattern of behavior is found to be related to genetic effects, then there is as much reason to assume that this relation is dynamic and fluid as there would be if the behavior were susceptible only to environmental control. There seems to be no logical or empirical basis for assuming that environmental behaviors are any more modifiable than hereditary behaviors. The treatment of behavior disorders known or suspected to have a genetic link has a brief but impressive history. The critical test of remediating behavior seems to be less the analysis of causes than of the component responses making up the normal pattern. (8 refs.)

Department of Psychology
Fordham University
Bronx, New York 10458

502 **BRIDGEMAN, D. L.; & BRIDGEMAN, B.** Autism, stress, and ethology. *Science*, 188(4187):402-403, 1975. (Letter)

Tinbergen's discussion of early childhood autism as a stress disease leaves a number of false impressions and tells only part of the story. A number of studies of concordance in twins have suggested the possibility of a genetic determinant in at least some cases of childhood autism. We favor the hypothesis that a child is born with a threshold level for autism, the level for some children being so low that it is exceeded even in near-optimal environments. There is some evidence that autism is associated with high intelligence, but in general the autistic child will not learn language spontaneously and must be taught every word and phrase. Our therapy is based on operant conditioning in a setting of warmth and trust and includes the training of all people with whom the child comes into contact. Caution must be used in assuming that activities exhibited in both normal and autistic children are similar in cause or ethological function. (6 refs.)

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University of California
Santa Cruz, California 95064

503 **RIMLAND, BERNARD.** Autism, stress, and ethology. *Science*, 188(4187):401-402, 1975. (Letter)

Tinbergen's conclusion that autism is caused by psychological stress rather than by organic factors is at variance with research conclusions of many scientists. A study in which I participated showed a highly significant difference between autistic children with Kanner's syndrome and undifferentiated "autistic" children. Our study showed that a small subgroup of children could be discriminated by a blind biochemical test from both normal and psychotic children in 19 out of 23 attempts. The idea that emotional disturbance caused the biochemical error must be rejected in favor of the explanation that this type of biochemical error produces a predictable pattern of aberrant behavior in children. Tinbergen errs in assuming that correlated effects must have an identical cause; he further assumes that the cause (stress) is socially induced in each child, instead of being the result of a physically caused cognitive impairment. (4 refs.)

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504 **TINBERGEN, NIKOLAAS.** Autism, stress, and ethology. *Science*, 188(4187):405-406, 1975. (Letter)

The various theories on the nature and origin of autism do not try to link all the known components of Kanner's syndrome with either the idea of a purely genetic explanation or an organic explanation. The ethological approach focuses more attention on the observable behavior of both autistic and normal children and the external situations that either reduce or aggravate a set of symptoms in both. When this is done, the interpretation of Kanner's syndrome as one of motivational conflict is clearly well founded. This hypothesis also has the merit of being consistent with many of the symptoms. Early environmental influence seems quite likely to be a cause of the autistic child's condition, but this need not rule out the possibility of genetic determination. Studies of normal language development should throw more light on difficulties that autists have with language. At present we are all still groping towards an understanding of autism, and the environmental approach deserves to be followed up. (5 refs.)

Animal Behavior Research Group
Department of Zoology
Oxford University
Oxford, England

505 **RICHER, JOHN; & RICHARDS, BARRY.** Reacting to autistic children: the danger of trying too hard. *British Journal of Psychiatry*, 127:526-529, 1975.

Video tapes which recorded how 9 autistic children reacted to 4 styles of adult behavior indicated that reactivity by others appears to enhance the child's avoidance. Adult behavior included reacting to the child's looks by 1) smiling, 2) gaze averting, 3) gaze averting plus other timid behaviors, and 4) doing nothing except continuing to look back. When the adult did not react, autistic children showed less avoidance behavior after eye contact and spent more time within one meter of the adult. Findings, which have implications for treatment contrary to much modern practice, suggest that adults be circumspect in the degree of sociability with which they respond to autistic children. (16 refs.)

Smith Hospital
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Oxon, England

506 **MCQUID, PAUL E.** Infantile autism in twins. *British Journal of Psychiatry*, 127:530-534, 1975.

Social and developmental history and clinical findings are summarized for a pair of monozygotic male twins concordant for early infantile autism. Neurological, serological and audiometric findings were normal in both Ss. Psychological testing at 4 years old showed one twin to be moderately MR and the other to be SMR. They seem to have received reasonably good care and to have not been significantly rejected or ignored in spite of family socioeconomic problems and marital discord. Diagnosis was infantile psychosis with MR. These defects could stem from severe obesity with hypertension in the mother before their birth, with inadequacies in prenatal care and perinatal preparation acting on a genetic substrate.

In assessing the prognosis, the relevance of adequate social training and "education" is stressed. (19 refs.)

Department of Child and Family
Psychiatry
Mater Misericordiae Hospital
Dublin, Ireland

507 **BINGHAM, GRACE D'AGOSTINO.** Career attitudes and self-esteem among boys with and without specific learning disabilities. *Dissertation Abstracts International*, 36(2):815A-816A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-17,340.

Thirty boys with specific learning disabilities and 30 without, at each of the 2 developmental levels of preadolescence (grade 6) and adolescence (grades 9 and 10), were compared on career attitudes and self-esteem. All Ss were within the average range of intelligence. The Crites' Attitude Scale of the Career Maturity Index and the Coopersmith Self-Esteem Inventory were used to measure the 2 affective variables. The data were analyzed through chi-square analysis and analysis of covariance. The results revealed a significant difference in career attitudes between boys with and without specific learning disabilities at both developmental levels, a significant difference in self-esteem between the groups at the preadolescent but not at the adolescent level, and a significant relationship between career attitudes and self-esteem at the preadolescent level for boys with specific learning disabilities and at the adolescent level for boys without specific learning disabilities. The findings support the modification of curricular career education activities to accommodate the particular developmental readiness of youngsters with specific learning disabilities.

Rutgers University
New Brunswick, New Jersey

508 **MONROE, KATIE M.** Self-esteem of educable mentally retarded students in segregated and integrated classes. *Dissertation Abstracts International*, 36(2):788A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-17,357.

Thirty EMR males and 30 EMR females from segregated (self-contained classes including only MR students) public school programs and 30 EMR males and 30 EMR females from integrated (regular classes with non-MR peers) public schools programs completed the Self-Esteem Inventory and were rated by their 20 teachers on the Behavior Rating Form. The hypothesis that students in integrated classes have higher self-esteem than students in segregated classes was supported by a significant difference in the self-esteem scores of the 2 groups. However, students in the integrated classes were also older and had higher MA and IQ than those in segregated classes. Teachers tended to give high behavior ratings to all Ss in the study.

Rutgers University
New Brunswick, New Jersey

509 **TALBOTT, ROBERT WILLIAM.** Community adjustment, achievement motivation and causal attribution in retarded adult males. *Dissertation Abstracts International*, 36(3):140A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-18,747.

Five hypotheses related to community adaptation of EMR individuals' need for achievement as measured by the Thematic Apperception Test (TAT) and the perceived causes of success and failure were examined with 31 mildly MR males (CA 19 to 29) who were out of school. The hypotheses were that: 1) community adjustment of MR high in achievement motivation (AM) will be higher than that of MR low in AM; 2) MR high in AM will more frequently attribute success to ability and/or effort than MR low in AM; 3) MR high in AM will more frequently attribute failure to luck and/or effort than MR low in AM; 4) MR judged higher in community adjustment will more frequently attribute sucess to ability and/or effort than will MR low in community adjustment; 5) MR judged high in community adjustment will more frequently attribute failure to luck and/or effort than will MR low in community adjustment. None of the hypotheses was supported, but post hoc examination of the data suggested differences between the high and low adjustment groups in terms of patterns of preference for stated causes of success and failure.

University of Oregon
Eugene, Oregon

510 **HORNE, MARCIA DIANNE.** An investigation of teacher and peer attitudes and the effect of achievement on self-concepts and status of learning disabled and non-learning disabled pupils in regular elementary classrooms. *Dissertation Abstracts International*, 36(3):1436A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-18,538.

One hundred and thirty-five second grade students, 147 third grade students, and 7 classroom teachers at each of these grade levels participated in a study of (1) the relationships between achievement and self-concept, teacher ratings and self-concept, and achievement and teacher and peer attitudes, and of (2) the effect of providing information (the learning disabled classification) on teacher and peer attitudes. Students were administered the Self-Concept and Motivation Inventory, the Stanford Achievement Tests, and the Lorge Thorndike Intelligence Test and were rated by their teachers on the Pupil Behavior Rating Scale. Peer and teacher attitudes were measured by the Perception of Social Closeness Scale. Limited support was found for the relationships between achievement and self-concept, between achievement discrepancy and self-concept, and between teacher ratings and self-concept. Partial support was found for the relationships between achievement and teacher attitudes and between discrepancy scores and teacher attitudes. Peer attitudes were related significantly (.05) to reading and spelling achievement at both grade levels. The effect of information on teachers or students was not significant.

Boston University School of Education
Boston, Massachusetts

511 **FURBEE, JAMES DUAINE.** Social rejection and the mentally handicapped. *Dissertation Abstracts International*, 35(9):5967A-5968A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-5412.

Social rejection of 160 regular class students and 76 MR students in the public school setting at grades 3, 6, 9, and 12 was investigated. Handicapped Ss were all partially integrated. The names of randomly selected Ss from both groups were placed alphabetically on a questionnaire, and students had to indicate their degree of acceptance or rejection of the listed individuals. Social rejection of regular class Ss towards handicapped Ss significantly increased in intensity with an increase in grade level. Handicapped Ss rejected regular class Ss significantly less than regular class Ss rejected themselves at all levels except grade 9, and handicapped Ss rejected themselves significantly less than regular Ss rejected themselves. Thus, handicapped Ss were found to be significantly more rejected and significantly less rejecting than their regular class counterparts.

512 **LAFFERTY, ROSCOE BEECHER, JR.** A comparative study of post-school adjustment in educable mentally retarded graduates from segregated special schools and integrated special classes. *Dissertation Abstracts International*, 35(11):7158A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-11,380.

Employment status, sociocivic and economic coping ability, and educational training level were determined for EMR adults who graduated from special education within the last 6 years, 28 of them from segregated programs and 23 from self-contained integrated programs. Seventy-five questions were asked in personal interviews with each S, and 4 were selected to test each hypothesis. The Kuder-Richardson 20 formula was employed to determine homogeneity of items, and the t-test of statistical procedure was used to determine significance of difference between mean scores. Results for the study population were not significant, and it was concluded that no significant differences existed among graduates of diverse special education programs.

Ohio State University
Columbus, Ohio

513 **WYNN, LAWRENCE.** An investigation of the self-concepts of educable mentally retarded children in institutional and natural home settings. *Dissertation Abstracts International*, 35(11):7162A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-9958.

Self-concept, as measured by the Piers-Harris Children's Self-Concept Scale, was determined for 20 male and 20 female EMR individuals residing in the community with their biological parents and 20 male and 20 female EMR individuals residing in various institutions and matched with the first group for CA (11 to 14 year), MA (8 to 10 year), and IQ (60 to 75). Data were analyzed by means of a factorial, 2-way analysis of variance. The results indicated a main effect due to both sex and residence of Ss, with males having significantly more positive self-concepts than females and community residents having significantly more positive self-concepts than institutionalized Ss.

University of Alabama
University, Alabama

514 **CARTER, CHARLES A.** An investigation of self-acceptance and the perception of the mother-offspring relationships of black educable mentally retarded and nonretarded offspring. *Dissertation Abstracts International*, 35(7):4280A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-79.

Relationships between black mothers and their EMR and non-MR children were investigated among 40 black male EMR and 40 black male non-MR Ss aged 15 to 16 years who were from broken homes where the mother was head of the household or from inner city families of low socioeconomic status and had no significant physical or neurological handicap. All Ss were administered the Laurelton Self-Attitude Scale (LSAS) and the Piers-Harris Children's Self-Concept Scale (CSCS) to assess their levels of self-acceptance and the Swanson Child-Parent Relationship Scale (CPRS) to assess their perceived relationships with their mothers. Hollingshead's Two Factor Index of Social Position was used to determine maternal socioeconomic status. Satisfactory reliabilities indicated that all the scales were stable when used as research instruments with black non-MR males and that the CSCS was stable when used with black EMR males, but the LSAS and CPRS lacked stability when used with black EMR male offspring. The results suggested that educators and counselors should promote higher self-accepting attitudes among black EMR offspring and encourage better child-mother relations between black non-MR offspring and their mothers in order to improve social and learning effectiveness within the school setting.

Catholic University of America
Washington, D.C.

DEVELOPMENTAL ASPECTS – Psychodiagnostics

515 **SOEFFING, MARYLANE Y.** New assessment techniques for mentally retarded and culturally different children–a conversation with Jane R. Mercer. *Education and Training of the Mentally Retarded*, 10(2):110-116, 1975.

The System of Multicultural Pluralistic Assessment (SOMPA) was developed to correct for cultural bias in the intelligence quotient test (IQ) and to allow more valid assessment of persons from racial and cultural minorities. SOMPA is a battery of 2 measures which should be used together, including scales of adaptive behavior, family background information, manual dexterity batteries, measures of visual motor skills, and evaluation of health history and impairments. Scores on the standards norms are interpreted as a measure of current functioning level in relation to the culture of the school rather than as a measure of biological or genetic potential. SOMPA may be a method for correcting cultural biases in the standard measures of IQ. Many children who were formerly labeled as EMR by an IQ test will be viewed as children from culturally different backgrounds. (4 refs.)

CEC Information Center
1920 Association Drive
Reston, Virginia

516 **ALCORN, CHARLES L.; & NICHOLSON, CHARLES L.** A vocational assessment battery for the educable mentally retarded and low literate. *Education and Training of the Mentally Retarded*, 10(2):78-83, 1975.

A 12-test vocational assessment battery for EMR and low literate children was developed with special sensitivity to low reading level, short attention and interest span, difficulty in following instructions, and time limitations. Tests were administered with the use of cassette tapes and earphones to groups of 8 to 10 Ss within the school day by 3 evaluators. Measures of verbal and nonverbal intelligence, mechanical aptitude, achievement in spelling, reading and arithmetic; clerical aptitude; visual motor perception; dexterity; vocational interests; and personality were included and supplemented by an interview. A programmable calculator was used for an immediate interpretation of the 16 Personality Factor Test, but scoring of most tests was accomplished through hand scoring keys and manuals. Specific educational, vocational, and behavioral recommendations useful to teachers and counselors are included in a final report based on combined data. Further behavioral evaluation may be suggested by battery data.

Department of Education
North Carolina Central University
Durham, North Carolina

517 **ROGERS, W. B.; & ROGERS, ROBERT A.** A follow-up study of the Preschool Readiness Experimental Screening Scale (the PRESS). *Clinical Pediatrics*, 14(3):253-256, 1975.

A follow-up evaluation of the Preschool Readiness Experimental Screening Scale (PRESS) was conducted with 82 male and 8 female kindergarten children to determine whether the measure is a valid indication of school readiness. Prior to entering kindergarten, the Ss had been administered the PRESS, a 10-point scale constructed to measure the prekindergarten child's maturation level in certain social, motor, and intellectual skills. Teacher ratings of performance (as average or above or below average) and Metropolitan Readiness Tests (MRT) scores were obtained for each S at the end of the kindergarten year. Correlations between PRESS and MRT scores, computed by Pearson product moment correlation coefficient, were .55 for males and .50 for females. Point biserial correlations computed between teacher ratings (below average vs average or above) and PRESS scores were .51 for males and .52 for females. The finding that females tended to cluster around the middle of the test-score distributions and that males clustered at the extremes agrees with results of other researchers concerning achievement differences between the sexes and may have some bearing on why males experience learning difficulties more often than females. The correlations between the PRESS and MRT scores and the PRESS and teacher ratings indicate that the PRESS is a valid indicator of school readiness (8 refs.)

Children's Hospital of Akron
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518 **WAGNER, LINDA L. KORDIS.** Behavioral rigidity of normal and learning disabled students as measured by a modified version of the WISC, Coding B subtest and by Raven's *Standard Progressive Matrices. Dissertation Abstracts International*, 36(4):2114A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-21,837.

Thirty pairs of sixth-, seventh-, and eighth-grade normal and learning disabled students matched for chronological age, sex, and intelligence were individually administered the modified Wechsler Intelligence Scale for Children-Revised (WISC-R), Coding B subtest, and Raven's Standard Progressive Matrices (PM) twice at an interval of 5-7 weeks. The hypothesis that there would be statistically significant correlations among raw scores of the 2 instruments was substantiated partially, while the theory that Ss diagnosed as having learning disabilities would yield statistically significant lower mean raw scores than normal Ss on Raven's PM was rejected. Students diagnosed with learning disabilities exhibited more rigid behavior than normal Ss, with the summed means of scores on the modified WISC coding subtest, Parts 3 and 4, serving as an adequate measure of rigidity. Raven's PM was not considered an adequate measure of rigidity.

University of Oklahoma
Norman, Oklahoma

519 *FRANKENBURG, WILLIAM K; & **THORPE, HELEN S. Optimal developmental appraisal. *Developmental Medicine and Child Neurology*, 17(6):819-821, 1975. (Letter)

In response to a previous paper, developmental screening for MR is defended from the charge that it is a negative approach which emphasizes deficits, and its importance in promoting early diagnosis is stressed. Findings are summarized which indicate that the Denver Developmental Screening Test is a valid screening instrument which can be administered by trained paraprofessional aides. A reply stresses the need for all professionals to re-examine all existing tools for their relevance in screening developmental strengths and needs. (13 refs.)

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520 HOLLAND, TERRILL R.; LOWENFELD, JOHN; & WADSWORTH, HELEN M. MMPI Indices in the discrimination of brain-damaged and schizophrenic groups. *Journal of Consulting and Clinical Psychology*,43(3):426, 1975.

Thirty brain damaged and 30 schizophrenic male inpatients, equated for Wechsler Adult Intelligence Scale intelligence quotient, were administered Watson's Minnesota Multiphasic Personality Inventory (MMPI) based Schizophrenia-Organicity scales and other MMPI indices in an attempt to differentiate between the 2 diagnostic groups. Only Watson's Schizophrenia-Organicity scales discriminated between the groups at an acceptable level of statistical significance, and these scales failed to retain their discriminating power when degree of emotional disturbance was held constant through the use of partial phi coefficients. When 20 patients who were both brain damaged and schizophrenic were compared with the original sample, the Schizophrenia-Organicity Scales were not capable of selecting the brain damaged from among the 50 schizophrenics or of selecting the 20 Ss who were also schizophrenic from the total group, supporting the hypothesis that these scales are heavily weighted for severity of emotional disturbance. (1 ref.)

California Institution for Men
Box 128
Chino, California 91710

521 OGDON, DONALD P. Extrapolated WISC-R IQs for gifted and mentally retarded children. *Journal of Consulting and Clinical Psychology*, 43(2):216, 1975.

Since gifted and MR children may earn a score on the Wechsler Intelligence Scale for Children-Revised (WISC-R) which is beyond Wechsler's norms, extrapolated intelligence quotients (IQs) are presented for sums of scaled scores that are both below and above the values published in Wechsler's WISC-R manual. Regression equations were derived for the relationship between IQs and within .6 of an IQ point of the values reported by Wechsler. Reliability of the tables may be attenuated by a departure from linearity at the extremes of distribution, the greater probability of error as data are extrapolated, and the small number of items successfully completed to establish the scaled score with the low IQs.

Department of Psychology
Old Dominion University
Norfolk, Virginia 23508

522 DOW, M. G. T.; LEDWITH, F.; FRASER, W. I.; & BHAGAT, M. The usefulness of the semantic differential with "mild grade" mental defectives. *British Journal of Psychiatry*, 127:386-392, 1975.

The usefulness of an unmodified semantic differential with MRs was shown to be limited in a study of 20 male trainees (mean age 19.1 years) from a number of senior training centers for the MR. Results confirmed that 1) mild grade MRs showed less discrimination in the use of the semantic differential than subjects of average intelligence, and 2) discriminative deficiencies among the MR predispose toward a polarized response bias. Findings suggest that a modified (3 or 5 point) scale should be used for MRs, or possibly the scale should be structured in a much more concrete form. (28 refs.)

523 **BALLINGER, BRIAN R.; ARMSTRONG, JENNIFER; PRESLEY, ALLAN S.; & REID, ANDREW H.** Use of a standardized psychiatric interview in mentally handicapped patients. *British Journal of Psychiatry*, 127:540-544, 1975.

The applicability of the Clinical Interview Schedule (Goldberg *et al.*, 1970) was assessed in 27 MR hospital patients, including patients with more severe degrees of MR. Three raters rated the patients simultaneously. Of the 31 items evaluated for reliability, 11 were completely satisfactory, 9 were satisfactory, 6 were unsatisfactory, and 6 were "not proven". When validity was assessed for overall severity of psychiatric illness, the observers' ratings correlated significantly with that of consultants responsible for the patients. Findings point to the frequent occurrence of psychiatric symptoms in a setting for the MR. (10 refs.)

Dundee Psychiatric Service
Strathmartine Hospital
Dundee, Scotland

524 **VAN HAGEN, JOHN; & KAUFMAN, ALAN S.** Factor analysis of the WISC-R for a group of mentally retarded children and adolescents. *Journal of Consulting and Clinical Psychology*, 43(5):661-667, 1975.

Scaled scores on the Wechsler Intelligence Scale for Children-Revised (WISC-R) for 80 MR youngsters (ages 6 to 16 years old) were correlated, and the matrix was subjected to several factor-analytic techniques. Verbal Comprehension, Perceptual Organization, and Freedom from Distractibility, the 3 factors identified for normal children in a previous study of the WISC-R, were also found for the MRs, although some differences emerged in the distractibility factor. Factor structure of the WISC-R for MRs also resembled the structure of the 1949 WISC that was identified for several groups of institutionalized and noninstitutionalized MRs. Findings suggest that there may be no qualitative differences in the structure of intelligence for normal and MR children and should provide clinicians with a sense of continuity in interpreting the WISC-R. (10 refs.)

Department of Educational
Psychology
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525 **LEONARD, DWIGHT JAMES.** WISC pattern analysis: a comparison of techniques for the diagnosis of minimal brain dysfunction in school age children. *Dissertation Abstracts International*, 36(2):708A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-16,945.

Eight different Wechsler Intelligence Scale for Children (WISC) scoring methods for diagnosing minimal brain dysfunction (MBD) were formalized mathematically and were applied to the testing of 76 MBD children and 37 emotionally disturbed children. Of the individual methods, only those of Money (1962) or Bannatyne (1971) were able to distinguish significantly ($p<.005$) between the 2 groups of children. The methods of Clements and Peters (1962) and McGlannan (1968) were predictive of emotional disturbance rather than of MBD. It was concluded that the WISC can be used to distinguish between MBD and emotionally disturbed children, but different scoring methods must be computed to allow for the fact that MBD is not a single syndrome.

Montana State University
Missoula, Montana

526 **FELLER, TILGHMAN J.** A comparison of Wechsler Intelligence Scale for Children scores of specific learning disabled and reading disabled students. *Dissertation Abstracts International*, 36(3):1432A-1433A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,108.

Forty-four learning disabled and reading disabled public elementary school students (chronological age 9 to 12) participated in a comparison of mean scores on the Wechsler Intelligence Scale for Children (WISC) Full Scale Intelligence Quotients, Verbal subtests, and Performance subtests. Significant differences were revealed between the mean scores of males and females on subtests, with more found on Performance subtests than on Verbal subtests. Fewer significant differences were found for age 10 than for the other age groups. A

significant difference was found only at age 9 between the mean score of students in specific learning disabilities classes and the mean score of students in remedial reading classes on the Picture Assembly subtest. While the mean scores of each group generally followed previously reported patterns of WISC scores, the mean WISC scores of the 2 classes did not differ significantly on the Full Scale IQ or most of the WISC subtests; however, both groups scored generally lower on the Verbal than on the Performance subtests.

University of Missouri
Columbia, Missouri

527 **STARK, F. RICHARD.** An analysis of the effectiveness of the Slosson Intelligence Test for the identification of mentally retarded preschool children, using the Stanford-Binet as the base test. *Dissertation Abstracts International*, 36(3):1440A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,513.

The use of the Slosson Intelligence Test (SIT) as a substitute for the Stanford-Binet Intelligence Test (S-B) was investigated with preschool and kindergarten children identified as slow learners. Four hypotheses regarding the essential correlation of the 2 instruments were made, and the coefficient of correlation obtained from Ss' intelligence scores was analyzed. The data revealed a significant difference between the SIT and S-B in distinguishing MR from normal children, and the first 3 hypotheses were rejected. The hypothesis that there would be no significant difference between the SIT and S-B correlations obtained for boys and those obtained for girls was validated. The findings indicated that the use of the SIT as a substitute for the S-B must be done with great caution and that the usefulness of the SIT as a screening device for MR placement is probably not justified.

American University
Washington, D.C.

TREATMENT AND TRAINING ASPECTS – Educational

528 **INGRAM, CREGG F.; & BLACKHURST, A. EDWARD.** Teaching and advising competencies of special education professors. *Exceptional Children*, 42(2):85-93, 1975.

The critical incident technique was employed to identify effective college teaching and advising behaviors in the area of special education. Seventeen faculty members, 71 graduate students, and 187 undergraduate students from a special education department were asked to identify critical professorial behaviors which they felt were necessary to teach and advise college students effectively. The first 3 major steps of the critical incident technique were used to develop a questionnaire from which critical behavior preferences could be collected; the remaining 2 steps were used to synthesize critical behaviors into more specific statements of competency. Ss identified 2,470 critical incidents of instructing competencies, which were generalized into 192 statements of behavior describing effective instruction and synthesized into a list of 78 specific competency statements. The major areas of instructing competencies included professional knowledge, preparation, presentation, and evaluation skills. Professional knowledge skills, management skills related to advising special education college students, and interpersonal skills were the main categories of advising competencies. (31 refs.)

Special Education Unit
School of Education
University of Louisville
Louisville, Kentucky

529 **PIRLLAMAN, DOUGLAS.** An analysis of placement factors in classes for the educable mentally retarded. *Exceptional Children*, 42(2):100-108, 1975.

During the 1971-72 school year, data were collected on 7,427 children enrolled in primary and intermediate classes for EMRs in the Virginia public schools as a means of determining policies and practices for the EMR in Virginia public schools and the extent to which children were misplaced in these special classes. Data were collected by the use of a survey form mailed to 582 school divisions in Virginia reported to have classes for EMRs. Information was obtained on CA, sex, race, intelligence test scores, number of years in school, number of years in a special class, socioeconomic indicators of the families, and teacher judgment regarding placement and/or misplacement for each child. Children with measured IQs above 75 were assigned to EMR classes, often as a result of a single IQ test. More blacks than whites, more males than females, and more children from low socioeconomic than from high or middle socioeconomic environments were enrolled in statewide EMR classes. A small percentage of children currently enrolled in these classes could be returned to regular education; a significant number of children could be returned to regular education if minimal helping teacher services were available at the time of transition.

Diagnostic-Prescriptive Teacher
Program
College of William and Mary
Williamsburg, Virginia

530 **HARRIS, WALTER J.; & MAHAR, CAROLYN.** Problems in implementing resource programs in rural schools. *Exceptional Children*, 42(2):95-99, 1975.

The resource model is gaining increasing acceptance as an efficacious means of meeting the needs of mildly handicapped children within the educational mainstream. However, certain common implementation problems persist in rural school districts. Lack of complementary services, preconceived role rigidity, and administrative inertia all contribute to a lack of organizational readiness. Role conflict, inaccurate expectations, and power struggles contribute to and support system shock. In more sophisticated school systems where readiness and shock are not factors, interpersonal qualities may represent the roadblocks. To facilitate the development and effective

operation of resource programs in rural schools, particular prerequisites must be considered. Administrative and front line groundwork must be carefully laid, with emphasis placed on changes in referral systems, formulation of child study teams, and a clear and public delineation of roles between the resource teacher and other specialists. In addition, an accurate public relations effort is needed to inform parents, teachers, and administrators about the goals and functions of a resource program. (6 refs.)

University of Maine
Orono, Maine

531 **WATSON, MARJORIE.** *Mainstreaming: The Educable Mentally Retarded.* Washington, D. C.: National Education Association, 1975. 55 pp. Available from National Education Association of the United States, 1201 16th Street, N. W., Washington, D. C. 20036 (NEA stock no. 1800-1-00. $2.00).

Strategies for mainstreaming MR children in regular classes are discussed, levels of MR described, environmental influences summarized, and diagnostic factors reviewed. Goals of education for the EMR include acquisition of basic skills, social adjustment, and occupational competence. Indications for special class placement are reviewed and aspects of program content and structure and evaluation of the EMR in regular elementary school classes described.

532 **DONOHUE, GREGORY; & RAINEAR, ARTHUR D.** *Resource Room Approach to Mainstreaming: Survey of the Literature.* Pitman, New Jersey: Educational Improvement Center, 1975. 25 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MR $0.76; HC $1.58, plus postage. Order No. ED111123.

Designed to facilitate educational planning in New Jersey, this manual surveys literature on the place of the resource room as an alternative instructional model for EMR children. The historical development of special education services is reviewed, as well as admissions procedures, judicial decisions, the efficacy of special class placement, and the effects of labeling.

533 **DONOHUE, GREGORY; & RAINEAR, ARTHUR D.** *Resource Room Approach to Mainstreaming; Survey of Program Planning.* Pitman, New Jersey: Educational Improvement Center, 1975. 20 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED111123.

Program planning processes employed by 40 New Jersey schools in establishing resource rooms as alternatives to special classes for handicapped children were surveyed by questionnaire. Responses indicated that most of the schools surveyed did not formally evaluate their special classes, that change to a resource room model was usually suggested by a child study team, that regular and special class teachers contributed little to developing the resource room model, and that there was no set pattern for resources room planning.

534 **TURNBULL, H. RUTHERFORD, III.** *Legal Aspects of Educating the Developmentally Disabled. Second Monograph Series on Legal Aspects of School Administration No. 6.* ERIC/CEM State-of-the-Knowledge Series, No. 31. Topeka, Kansas: National Organization on Legal Problems of Education*, 1975. 59 pp. $4.95.

Reflecting major legal developments in the 1970s, this monograph reviews judicial decisions overruling school districts excluding developmentally disabled children from educational programs. Underlying legal principles are discussed in the light of rights to education and Fourteenth Amendment rights to equal protection and due process. Relevant state constitutional and statutory provisions for educating the handicapped are also examined. An appendix contains proposals for state legislative action to respond to right to education mandates.

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535 **KIMBRELL, HARRISON W.; & KARNES, LUCIA R., eds.** *Dyslexia; A Common Sense Guide to the Diagnosis and Treatment of Specific Language Disability. Monograph 1.* Mount Pleasant, South

Carolina: Trident Academy, 1975. 18 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED110977.

Schools, facilities, and services available for the child with a language disability (dyslexia) are discussed. Criteria for evaluation are suggested, including motive and purpose of the institution, community reputation, services offered, diagnostic procedures used, specialists available, quality of faculty and administration, responsibility to higher authority, curricula, budget, admissions policy, and results achieved. Private educational situations for dyslexic students who require intensive remediation are also evaluated.

536 East Carolina University. *Learning Disabilities and the Language Arts: A Survey of Reading and Writing Instruction in the Secondary Schools; Addresses Presented at a Conference of the English Department of East Carolina University.* Faulkner, Janice Hardison, editor. Greenville, North Carolina, 1975. 117 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $5.70. Order No. ED110980.

Papers presented at a teachers' conference on language disabilities include "The Acquisition of Language," "Detecting and Correcting Reading Deficiencies," "Six Strategies for Improving Freshman Composition: A Course Conceptualization," "Achieving the Goals of Remedial English Programs," "Developing Language Skills for Modern Living," "Phonology and the New English," "Accommodating Deficiencies in Reading and Writing," and "Who Requires Remedial Reading."

537 **AULT, BERNADINE.** Guidance services for the developmentally disabled; a model for schools. *Resources in Education (ERIC),* 11(1):50, 1976. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED110900.

Methodology and techniques and specific services and resources are emphasized as 2 aspects of a school model for implementing guidance services for the developmentally disabled. Group counseling and guidance, individual counseling, play therapy, and psychodrama are recommended as techniques for assisting the disabled. Guidance services should encompass the full range of individual needs, including personal, social, educational, and vocational aspects, and should also be provided for parents of the disabled.

538 University of Wisconsin. *A Three Month Trial of Developing Mathematical Processes with Ten Educable Mentally Retarded Children.* Technical Report No. 336. Abernatha, Evelyn, & Wiles, Clyde A. Madison, Wisconsin, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.65; HC $1.95, plus postage. Order No. ED113204.

A study to assess the usefulness of the elementary mathematics program Developing Mathematical Processes (DMP) for EMR students is described. Subjects were 10 EMR children ranging from 7 to 12 years old. Results indicated that the objectives of each topic attempted were mastered with few exceptions. The children displayed a general willingness to begin new activities and maintained appropriate behavior, each student experiencing success at his own pace and level. The placement program, guided by data from the program's placement inventories and teacher judgment, was found deficient in some respects.

539 **CLARKE, CYNTHIA A.,** et al. *A Teacher's Notebook: Alternatives for Children with Learning Problems.* Boston, Mass.: National Association of Independent Schools,* 1975. 140 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76 plus postage. Available from the Association for $3.00.

Solutions to various problems that might arise in a diagnostic program for children with learning disabilities are discussed, and tests and evaluations for these children described. Diagnostic reports are presented on 4 children representing composite pictures of certain characteristics. Classroom techniques to enhance receptive and expressive processes are presented, along with activities and

exercises for children to practice during the summer. Suggestions are provided for distinguishing children with learning problems from slow learners.

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540 Missouri University. College of Education. *Proceedings of Project PRICE Trainer's Workshop. Working Paper No. 5.* Brolin, Donn E., ed. Columbia, Missouri, 1975. 86 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $4.43, plus postage. Order No. ED112548.

Nine papers delivered at the 1975 trainer's workshop of Project PRICE (Programming Retarded in Career Education) are reproduced. The purpose of the project is to develop an inservice model for training regular and special educators to provide effective career education to EMR from kindergarten through grade 12. The articles consider the need to view career education from a life-centered rather than work-centered approach; mainstreaming, normalization, and the economic situation; systems and methods for implementing education in values; methods for teaching daily living skills, personal social skills, and occupational abilities; and development of competence in utilizing leisure time.

541 **COLEMAN, PATRICIA G.; EGGLESTON, KATHLEEN K.; COLLINS, JOSEPH F.; HOLLOWAY, BETTY D.; & REIDER, SANDY K.** A severely hearing impaired child in the mainstream. *Teaching Exceptional Children*, 8(1):6-9, 1975.

A 9-year-old girl with severe hearing impairment was successfully mainstreamed into a large open environment elementary school class through the cooperative efforts of staff from the regular school, the child's special school, and the State Department of Education. Full time tutoring was used to help the child make the transition to the regular fourth grade class. Using a data based model of instruction, a comprehensive plan to teach oral and written communication was designed on the basis of standardized and informal entry level measures. Objectives were constructed in 3 major areas: auditory training, speech training, and receptive and expressive language training. The program included 90 minutes of special tutoring daily. The student spent the rest of the day in the classroom working on an individualized packet of materials which was monitored by the teachers. After one school year, the student demonstrated social and academic gains which warranted program continuation. (3 refs.)

Hinesburg Elementary School
Hinesburg, Vermont

542 **CROW, FRANCES; JOHNSTON, DEDE; MEEKS, MARGERY; & WILSON, PHILLIP.** Punch me, I earned it. *Teaching Exceptional Children*, 8(1):13-17, 1975.

A punch card system based on earned points for rewards and interval reinforcements has been developed at the McVey Diagnostic Impact Center in Newark, Delaware, to teach children new academic, social, and emotional behavior. Each child may earn 3 points in each 20 minute work period, with a possible maximum of 36 points. At the end of each day, children may choose a reward center on the basis of the number of earned points, with 32 points the minimum number needed for entry into the reward area. The punch card, which is being successfully used at the center, meets the needs of the individual students, the group contingency needs, and communication needs of team teachers. Advantages include the positive nature of the system, the simple accounting method, the provision of feedback, little need for verbalization, reliance on natural consequences, and reflection of reality.

McVey Diagnostic Impact Center
Newark, Delaware

543 **CADY, JERILYN L.** Pretend you are ... an author. *Teaching Exceptional Children*, 8(1):26-31, 1975.

A creative writing project in a self-contained class for learning disabled boys with poor reading skills helped the children (ages 8 to 13) improve their communication abilities, gain increased confidence in their ability to express themselves, and develop a sense of community. The project was initiated by reading aloud to the children daily to introduce them to a wide range of styles and

formats. Students were encouraged to respond to their imaginations. Mechanical aspects of writing were deemphasized initially, and students were allowed to help each other. Completed stories were read to the whole class by the teacher, and as reading skills improved, students read their own stories aloud. Stories encompassed a wide range of topics, some assigned by the teachers and others selected by the students. A list of 145 topics is included.

School District 74
Lincolnwood, Illinois

544 **WILL, PATRICIA.** A "voluntary" approach to curriculum development. *Teaching Exceptional Children*, 8(1):32-34, 1975.

Four volunteers trained in techniques of media development (Visual Maker, photography, transparencies and slides, and Super 8 movies) in a 3-day workshop provided technical assistance to special education teachers in developing curricular materials for special education classes. A teacher who had a specific curriculum project worked with each volunteer, the teachers providing the instructional sequence and the volunteers completing production. The goal of completing 6 projects in 2 months was successfully achieved, and units remained as retrievable, reusable curricular materials. Teacher enthusiasm resulted in plans to continue and expand the project by using volunteers to train parents of special education students to use media techniques.

St. Paul Public Schools
Special Education
360 Colborne Street
St. Paul, Minnesota 55102

545 **WENDT, EUGENE; SPRAGUE, MARY JANE; & MARQUIS, JEANNE.** Communication without speech. *Teaching Exceptional Children*, 8(1):38-39, 1975.

To enable a severely handicapped nonvocal child with cerebral palsy to communicate, a portable device (Auto-Com) was developed which uses a magnetic letter board and records messages on a typewriter, a television screen, or a tape printout. The device was developed by a multidisciplinary team which included engineering students from the University of Wisconsin. The Auto-Com enabled the student with normal receptive communication to participate more easily in classroom group activities, to increase his speed in acquiring reading and writing vocabulary, to gain an additional incentive for learning, and to improve his self-image. The Auto-Com has expanded the potential of persons who lack expressive language skills, but its ultimate effectiveness depends on the individual's unique configuration of physical and intellectual abilities as well as the training and support of habilitation workers.

Lapham Orthopedic School
Madison, Wisconsin

546 **HOLLIS, JOHN H.; & CARRIER, JOSEPH K., JR.** Research implications for communication deficiencies. *Exceptional Children*, 41(6):405-411, 1975.

Significant animal research in the prosthesis of communication deficiencies is reviewed, and application of findings to clinical management of communicatively impaired children is reported. Prosthetic methods and devices which can circumvent language and speech deficiencies include: 1) a prosthetic environment based on the use of behavioral techniques; 2) mechanical devices for the productive and expressive aspects of speech; 3) gestural systems such as finger spelling or sign language; and 4) language systems based on manipulable symbols. A systematic approach utilizing magnetized plastic words analogous to Chinese characters (Premack, 1971) appears to offer the most promise for the prosthesis of communication deficiencies. Severely deaf and PMR children are able to learn at least part of a communication system through Premack's system. Education can surmount the language barrier for communication deficient children by providing a response mode of communication which is not based on speech. (27 refs.)

Bureau of Child Research
University of Kansas
Lawrence, Kansas

547 **HARING, NORRIS G.; & KRUG, DAVID A.** Placement in regular programs: procedures and results. *Exceptional Children*, 41(6):413-417, 1975.

An individualized instruction program was designed to facilitate the mainstreaming of EMR students to regular classrooms. Ss were 48 elementary age students classified as MR and living in a disadvantaged urban area. They were randomly selected, divided into matched experimental and control groups, and placed in 4 classrooms (12 students each). After a year's intervention, experimental Ss scored higher on math and reading achievement tests, and 13 students from this group entered regular classes. When the experimental students were matched (by reading scores) with Ss who had already been in regular classrooms, 1-year follow-up revealed that experimental Ss rated slightly higher in both academic and social adaptation. A number of high risk children are capable of making normal growth in regular programs, but academic and social preparation before reentry is needed to ensure success. (3 refs.)

Experimental Education Unit
Child Development and Mental
Retardation Center
University of Washington
Seattle, Washington

548 **SOEFFING, MARYLANE.** Where the action is: a look at four special education R and D Centers. *Exceptional Children*, 41(6):419-425, 1975.

Four federally sponsored research and development centers for handicapped children are carrying out a variety of projects designed to improve educational programming for this population. Projects described in an informal telephone survey include: 1) a series of exportable teacher training packages; 2) intervention materials and techniques for use with behaviorally disturbed children in regular classrooms; 3) evaluation of the effect of maternal tutoring on Down's syndrome children; 4) a continuum curriculum for children with varying degrees of MR; 5) structured lessons to develop receptive skills in young hearing impaired children; and 6) development and evaluation of early communication systems to improve academic performance in children deficient in the use of language skills.

1920 Association Drive
Reston, Virginia 22091

549 **WIXSON, STANTON E.** Students' reactions to competency based special education courses. *Exceptional Children*, 41(6):437-439, 1975.

Preliminary data regarding practicing teachers' evaluations of special education courses presented in a competency-based performance criterion format were obtained from 30 teachers, representing students in 2 competency based courses in a special education certification program. At the end of the semester, each student was given a 19 item questionnaire to obtain his reactions to the competency based format used in these courses. Responses to 9 comparative items on the questionnaire overwhelmingly favored the competency based approach over traditional instructional approaches. No Ss made comments critical of the competency based approach in a narrative evaluation. Students believed both courses were useful in conveying a great deal of knowledge and new skills. All Ss recommended extension of the competency based format to other education courses. (2 refs.)

Department of Special Education
SUNY at Binghamton
Binghamton, New York

550 **BURKE, ARLENE AVERY.** Placement of black and white children in educable mentally handicapped classes and learning disability classes. *Exceptional Children*, 41(6):438-439, 1975.

The overall racial composition of learning disability and EMR classes in 2 school districts in a Northern suburban community was studied. Both districts used the Weschler Intelligence Scale for Children or the Weschler Adult Intelligent Scale for placement in special programs, but additional tests were sometimes given for learning disability placement. Chi square analysis indicated significantly more Black children than expected in EMR classes and more White children than expected in learning disability rooms. Fewer Blacks than expected received learning disability placement, while fewer Whites than expected were in EMR classes. Chi square analysis of the composition of learning disability classes alone by grade level showed more Blacks than expected at the elementary level but fewer than expected at secondary levels. An identical analysis of EMR

classes indicates the opposite trend. Findings imply subtle racism in educational placement which may be subsiding.

Huth Upper Grade Center
School District 162
Mattleson, Illinois

551 **BENDER, MICHAEL.** Special education. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education*. Baltimore, Maryland: University Park Press, 1976, Chapter 12, pp. 233-254.

Many new special education programs for the handicapped have developed as a result of the impetus created by the parents of these children. The multidisciplinary methods used to assess developmental levels and degrees of MR have long been controversial and have undergone continuous evolution. Among these, standardized tests often prove valuable in predicting a child's degree of readiness for formal schooling, while informal tests and activities can provide current information necessary to the planning of a student's program if they are sufficiently objective. Children with learning deficiencies who are not MRs have presented special problems for professionals. Although there is no major consensus on what approach works best with these youngsters, it is imperative that educators or other involved personnel realize the complexity of their learning processes and offer appropriate programs of continual remediation. SMR and PMR children have received much less attention than their EMR and TMR counterparts over the last 30 years. Until the late 1960's, most SMRs and PMRs were institutionalized immediately. Currently, behavior modification techniques are being viewed favorably for these children, and curricula for them are in the process of being developed. (29 refs.)

Johns Hopkins University School
of Medicine
Baltimore, Maryland 21205

552 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Transportation and transfers. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children*. Baltimore, Maryland: University Park Press, 1976, Chapter 5, pp. 53-74.

Techniques of transportation (the process of locomotion) and transfer (movement from one place to another) must be evaluated on an individual basis for MR children who have physical handicaps that prevent ambulation. Before initiation of transportation or transfer activities, the certified occupational therapy assistant or the registered occupational therapist should determine the best method for the child and whether or not he can play an active role in transfers. Physiological condition, strength, mobility, balance, comprehension, and motivation are among the factors to be considered in assessing the physical and psychological abilities of an MR child. Safety precautions should be observed at all times when a child in a wheelchair is being transported. The aide performs most of the work in the passive standing transfer, passive sitting transfer, transfer to a toilet, backward sliding transfer, or transfer from a wheelchair to the floor. The child participates in the different kinds of assisted active transfers.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

553 **ABESON, ALAN; BOLICK, NANCY; & HASS, JAYNE.** A Primer on Due Process: education decisions for handicapped children. *Exceptional Children*, 42(2):68-74, 1975.

A new Council for Exceptional Children publication has appeared dealing with current legislative requirements that due process protection be guaranteed to handicapped children in all matters pertaining to their identification, evaluation, and educational placement. Due process establishes the procedures that require the schools to consider all program alternatives and to select the least restrictive setting. Providing a child with an appropriate education is of equal interest and importance to the child, the family, and the schools. To ensure that education, it is imperative that, when initial educational evaluation and placement decisions or changes in existing placement are being considered, due process protections must be provided to the child, the family, and the schools. Whenever a decision is contested to the point that a hearing is to be convened, the hearing must be conducted in an impartial manner by impartial personnel. Moreover, when children lack parents or guardians who

are willing to participate in the decision making process, the law provides for a parent surrogate. Implementation of due process may produce many positive benefits, and it will in no way reduce the professional responsibility or authority of educators. (1 ref.)

Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091

554 California. Board of Education. *California Master Plan for Special Education.* Sacramento, California, 1974. 44 pp. (Price unknown.)

A framework for serving the child in need of special education services is proposed, with a single designation—"individuals with exceptional needs"—used for all recipients of special services. The roles of various educational agencies in providing special education are considered, and guidelines are included for evaluation in special education, for development of a financial model, and for personnel planning and development. The 8 new program components are categorized as supportive (identification, assessment, and instructional planning; management and support services; special transportation services; capital outlay) or instructional (special classes and centers; resource specialist program; designated instruction and services; nonpublic school services).
CONTENTS: Introduction to the Master Plan; Philosophy and Goals; Responsibilities for Special Education; Classification System; Program Components; Evaluation and Information System; Financial Mode for Special Education Funding; Personnel Planning and Development.

555 **BRANSFORD, LOUIS; & NAZZARO, JEAN.** Communication in seven league boots. *Exceptional Children*, 41(5):325-329, 1975.

A Satellite Technology Demonstration (STD) was launched to demonstrate the feasibility of a satellite based media distribution system for health and educational services (primarily in rural areas) and to evaluate user acceptance and costs. Although current content of the STD emphasizes career education, implications for services to exceptional children include: the design and promotion of health and educational programs using telecommunications technology to children in isolated areas; better utilization and application of mediated instruction; possible development of health and education programs using 2-way radio and video interaction; and coordination of school related telecommunication activities with local colleges for inservice teachers' training programs.

556 **CASKEY, OWEN L.; & LUTZ, SANDRA.** Special education as a vocational choice: influences and values. *Exceptional Children*, 41(5):332-334, 1975.

Data were gathered from a random sample of special education students and special education teachers to identify influences and values related to the choice of special education as a career. Response patterns of students and teachers differed in only minor respects. The majority of both groups indicated a commitment to the general field of education before a specific career evolved; more than 20 percent of both groups selected a special education professor as a great influence; and personal satisfaction and desire for career specialization were among the most frequent responses to open-ended questions. Value profiles of both groups were similar and conventional. Patterns of responses suggest the value of varying recruitment strategies, including more career publicity, direct preprofessional experiences, and emphasis on the humane segments of special education.

College of Education
Texas Tech University
Lubbock, Texas

557 **SMITH, I. LEON; & GREENBERG, SANDRA.** Teaching attitudes and the labeling process. *Exceptional Children*, 41(5):319-324, 1975.

Attitudinal data from 193 teachers of EMR children suggest that teachers' labeling decisions tend to be biased against the lower socioeconomic levels. Teachers were randomly assigned one of 9 hypothetical but realistic profiles of students containing information on school performance, social class, and community behavior outside school. Findings indicated that: 1) the lower the child's social class, the more appropriate the MR label was judged; 2) teachers acknowledged social class models of adaptive behavior; and 3) teaching

decisions concerning adaptiveness were independent of their judgments concerning the appropriateness of the MR label. Results support the assumption of the 6-hour MR child, or the child of low socioeconomic status with adequate adaptiveness in the community who is concurrently identified as EMR for purposes of school placement. (8 refs.)

Development Center in Mental Retardation
Department of Special Education
Ferkauf Graduate School of Humanities and Social Sciences
Yeshiva University
New York, New York

558 **ANASTASIOW, NICHOLAS J.; & MANSERGH, GILBERT P.** Teaching skills in early childhood programs. *Exceptional Children*, 41(5):309-317, 1975.

Three models of early childhood education programs for handicapped children differ most critically in the way they perceive the child as a learner. Observations of the behavior modification, the normal developmental, and the cognitive developmental approaches indicate high agreement on the instructional content and materials to be used, with differences generally relating to teaching techniques. The major difference in how the theories behind each model are translated into practice lies in the nature and amount of structure provided by the teacher. It is important to develop programs that are internally consistent and to draw upon a philosophy of education that matches the goals and objectives of the model center. (8 refs.)

Institute for Child Study
Indiana University
Bloomington, Indiana

559 Suggested equipment and materials list for learning disabled. West Palm Beach, Fla.: Palm Beach County Board of Public Instruction, 1975. 80 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. MF $0.76; HC $1.95, plus postage. Order No. ED115010.

A list of equipment and programmed and diagnostic materials for educating learning disabled, young and old TMR, emotionally disturbed and socially maladusted, homebound/hospitalized, speech handicapped, elementary and secondary MR, visually handicapped, and hearing impaired children is provided. As the equipment and material were developed for the basic classroom, the list can be adapted by the teacher to meet a specific situation. Information on materials includes name and address of distributor, cost, and a brief description. Information publications for teacher resources, including author, title, distributor, cost, and a description, are also provided for some section areas.

560 **JUSTEN, JOSEPH E., III; & CRONIS, TERRY G.** Teaching work attitudes at the elementary level. *Teaching Exceptional Children*, 7(3):103-105, 1975.

A sound foundation for occupational success can be established for MR children in elementary school by introducing them to typical occupations, familiarizing them with job qualifications, duties, and responsibilites related to these occupations, and helping them to establish realistic and effective vocational choices. Activities which further these goals include discussing various jobs, using drill sheets to improve memory of factors related to working situations, introducing them to workers from various fields, and helping them to analyze their strengths and weaknesses in relation to job requirements. Skills related to punctuality, assumption of responsibility, scheduling, and job evaluation can be worked into other classroom activities to convey and reinforce job attitudes and work habits. Specific suggestions are presented for experiences which will help ensure later job success. (5 refs.)

Department of Special Education
University of Missouri
Columbia, Missouri

561 **CRUTCHER, CORINNE E.; & HOFMEISTER, ALAN M.** Effective use of objectives and monitoring. *Teaching Exceptional Children*, 7(3):78-79, 1975.

A continuous monitoring system based on behavioral objectives was devised and field tested on slower learning math students in the primary

grades. Materials included 2 math texts used for classes, a master list of objectives (cross referenced and placed in related clusters), placement and criterion tests, and a continuous class record form for measurement of objectives and monitoring of each child. Immediate remediation was applied when a student failed to meet the 100 percent criterion for any objective. In a controlled study, a second grade monitored group gained almost half a grade level over the control group in 3 months. Although first grade pupils made smaller gains, results favored the experimental group. Monitoring can facilitate the special educator's new role as a resource person. (7 refs.)

Department of Special Education
University of Wisconsin
Oshkosh, Wisconsin

562 **MCMULLEN, DARLENE A.** Teaching protection words. *Teaching Exceptional Children*, 7(3):74-77, 1975.

TMR adolescents are taught to comprehend and recognize basic survival and protection words in a university hospital school through various games, puzzles, word and picture matching techniques, worksheets, and slide presentations. Specific activities are suggested for teaching 8 core words which appear frequently and have a high functional value: men, women, walk, don't walk, poison, danger, exit, and entrance. Assessment of students at the end of 2 weeks is based on verbalization and definition of 4 out of 8 words and appropriate behavior in 4 out of 8 prepared situations. Testing can be accomplished by flashcards, but is more valid when the student is placed in a realistic situation in unfamiliar surroundings. Although these children will always need some adult supervision, learning survival words will protect them when no adult is present, enable them to be as independent as possible, and help them achieve socially acceptable behavior.

Adolescent Program
University Hospital School
Iowa City, Iowa

563 **SHULENE, JOHN A.** Question: when is a picture a riddle? answer: when the riddle is the picture! *Teaching Exceptional Children*, 7(2):68-70, 1975.

Significant pretest and posttest differences were found on a pictorial concept development test after EMR children (7 to 16 years old) discussed pictorial riddles revolving around relevant themes. Riddles dealing with climate, mountain, and desert survival and hazards of operating electrical appliances were used to help Colorado children (intelligence quotients from 53 to 86) to learn basic deductive processes. Open-ended questions about pictorial presentations can be used to introduce a specific curricular unit or creative activity and to encourage students to design and carry out simple experiments. A divergent questioning technique allows for many correct answers and helps to remove the fear of failure common to many EMR children. (1 ref.)

Aylen Junior High School
Puyallup, Washington

564 **BORTON, LADY.** The one room school bus. *Teaching Exceptional Children*, 7(4):126-128, 1975.

A long trip on an Appalachian school bus (up to 4 hours daily) is used as a creative learning experience in which TMR individuals (aged 5 to 33) with varying physical ability, intelligence, and social behavior are assigned cooperative tasks. The bus has become a mobile classroom where students use their complementary strengths to help one another maximize social and academic skills, control inappropriate behaviors, and deal with physical obstacles. While helping others, students are also improving their own social knowledge and furthering their own development. The driver, who developed the program gradually when she realized she could not meet the passengers' individualized needs, coordinates her informal lesson plans with teacher's objectives.

Beacon School for Exceptional
Children
Athens, Ohio

565 **ARKO, DOROTHY N.** *Project Success Report, 1974-1975.* Bloomington, Minn.: Bloomington Public Schools, 1975. 56 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. MF $0.76; HC $3.32, plus postage. Order No. ED115708.

Project Success, in keeping with the philosophy underlying Bloomington Public Schools educational goals, incorporates the theory of individual differences and individualized instruction into a program of modified interdisciplinary instruction coordinated with special services. The project, designed for students with learning disabilities, began as an alternative program for grades 10-12 in 1969 and completed its fifth full year in 1975. The program was designed to provide strategies of instruction which provide students with success-oriented learning alternatives; avoid labeling students as social outcasts and incapable non-learners; remove school biases which impede youth development; provide students with an opportunity to make a transition from the alternative program to the regular program; provide an opportunity for vocational training or work experience during high school; and provide a wide range of interdisciplinary experiences as alternatives among the elective courses. The data collected pertain to the present twelth grade students who have decided to remain in the Project Success classes throughout the 3 years of senior high school.

566 **KEMPTON, WINIFRED.** Sex education—a cooperative effort of parent and teacher. *Exceptional Children*, 41(8):531-535, 1975.

Although studies indicate that parents of MR children generally support sex education programs for their children, strain and anxiety between many parents and teachers is hampering the delivery of sound sex education. A cooperative program, which involves parents from the beginning, can provide teachers with allies to reinforce learning at home; help reassure parents of motivations and limitations of school programs; foster parental attitudes which will further program goals; and clear up potential misunderstandings as the program progresses. Practical suggestions for involving parents in the sex education program include sending them a questionnaire to determine their opinions and attitudes; holding a meeting to discuss the program factually and dispel anxieties; inviting parents to be on a committee to help guide the program; encouraging parents to participate in a sex education class; and supplying parents with reading material which will complement the program. (5 refs.)

Planned Parenthood Association of
Southeastern Pennsylvania
Philadelphia, Pennsylvania

567 **LEVITON, HARVEY; & KIRALY, JOHN, JR.** Summer compensatory education: effects on learning disabled children. *Exceptional Children*, 42(1):48-49, 1975.

The common practice of referring learning disabled children to summer compensatory education programs gained little empirical support from a program in which 35 primary grade students were assigned to a treatment program consisting of 80-minute individual or small group tutorial sessions in reading, mathematics, and language arts. Although children in the treatment group showed significant gains in arithmetic problem solving skills over matched controls immediately after the program, differences between the groups disappeared after 6 months. Self-concept improved as a result of the summer program, but the improvement was not detectable immediately after the treatment. No significant relationship was observed between change in academic achievement and change in self concept.

Edina Public Schools
Edina, Minnesota

568 **FINK, ALBERT H.; GLASS, RAYMOND M.; & GUSKIN, SAMUEL L.** An analysis of teacher education programs in behavior disorders. *Exceptional Children*, 42(1):47-48, 1975.

Survey responses from 58 teacher education programs for the behaviorally disordered suggest that current programs emphasize behavioral and academic measurement and prescription intervention. Twenty-one programs characterized themselves as behavioral or behavioral combined with one other approach, 16 considered themselves as psychoeducational, and 15 considered themselves as eclectic. Only 5 considered themselves psychoanalytic/psychodynamic. Ratings of significance of 37 theoretical or skill objectives showed that classroom control was highly important in 51 programs. Five of the 8 most highly endorsed objectives fell within the behavioral approach. Topics for which special materials and procedures were most frequently used included 4 behavioral topics and 1 diagnostic/prescriptive remedial

teaching. While most models seemed to move away from the traditional clinical model, at least half of the programs gave considerable attention to the more severely handicapped and used residential programs for practicum.

Department of Special Education
Indiana University
Bloomington, Indiana

569 **GURALNICK, MICHAEL J.** Classroom based early intervention: the role of organizational structure. *Exceptional Children*, 42(1):25-31, 1975.

Nine characteristics of an effective classroom system for early intervention with handicapped and disadvantaged children were identified and incorporated into a curriculum evaluation feedback model. The model was designed to provide direction, permit individualization of instruction, be adaptable, ensure accountability, maintain a strong evaluation component, provide a link to research, be feasible, provide for teacher training, and be empirically based. The model, which is expected to undergo considerable change with the availability of new information, has been used successfully in a structured setting and has demonstrated generality with regard to children with a wide range of handicapping conditions. Boundary conditions for the model's effectiveness have yet to be determined. (16 refs.)

Experimental Preschool
National Children's Center
Washington, D.C.

570 **WHORTON, JAMES.** A follow-up study of personnel trained in special education. *Education and Training of the Mentally Retarded*, 10(2):120-123, 1975.

A survey of 51 recent graduates of an undergraduate special education program in Florida indicated that 42 had obtained a full-time teaching position by the September after graduation, there was an overabundance of available positions, and most jobs were accepted after the beginning of August. Ninety percent of the new teachers remained in Florida, 80 percent were working with EMRs, and 71 percent worked at the elementary level. Thirty-eight teachers were employed in public schools, while 4 worked in private schools. There is still a shortage of special education teachers at all levels and degrees, although the need is not as critical as it once was. (2 refs.)

Department of Special Education
College of Education
University of Florida
Gainesville, Florida

571 **OSTANSKI, JOHN.** New dimensions and considerations in the training of special education teachers. *Education and Training of the Mentally Retarded*, 10(2):117-119, 1975.

Changes in the organization and execution of certain special education courses and programs are suggested which would put special education in the mainstream of education. These include: training teachers to act as resource persons and consultants rather than special class teachers; ensuring that student teachers have more contact with exceptional children; preparing teachers to evaluate and apply new research more critically; implementing fundamental changes in course work which aim at competency; and improving understanding and communication between teachers and administrators. Certain administrative adjustments which would provide for innovation and improve education of handicapped children can be applied in existing, traditional special educational programs. (5 refs.)

Department of Special Education
University of New Orleans
New Orleans, Louisiana

572 **DAVIS, WILLIAM E.** The establishment of a special education resource center serving rural Maine. *Education and Training of the Mentally Retarded*, 10(2):124-125, 1975.

On the basis of needs assessment studies determining the existence of major gaps in the delivery of services to handicapped children in the area, a Special Education Resource Center (SERC) was established in rural Maine. Center operation involves the coordinated efforts of a university, a comprehensive community mental health clinic, and a state department of education, functioning together to provide referral and programming assistance and consultation in the area of special education to individuals and groups and operating

as an instructional materials center. Major emphasis is placed on SERC's role as a facilitating agent and as a vehicle for the delivery of special education services throughout the area. Workshop presentations, consultations, and "clearinghouse" informational activities are stressed. Frequent communication among the 3 sponsoring agencies is the major strength of the SERC operation.

Department of Education
University of Maine
Orono, Maine

573 **RADEKA, NICHOLAS.** Manual multiplication -- a handy way of multiplying. *Education and Training of the Mentally Retarded*, 10(2):102-103, 1975.

Most children in an intermediate EMR class were taught the multiplication tables (from 6 to 10) through a manual system which combined the assignment of numerals to each finger, the use of a system based on tens, and addition of products. Through movement of fingers students (who could count by tens, apply the rule of multiplication by zero, and knew multiplication tables from one through 5) were able to learn to multiply without additional memorization. The system works for every problem contained in the 6 through 10 tables. By the end of a school term, EMRs who used the finger method were able to multiply without using their hands.

Department of Special Education
School of Education
East Carolina University
Greenville, North Carolina

574 **KOKASKA, SHEREN METZ.** A notation system in arithmetic skills. *Education and Training of the Mentally Retarded*, 10(2):96-101, 1975.

That primary students are capable of handling concepts and principles was demonstrated in an exploratory project in which 4 females in a special arithmetic group were taught computational skills through a dot notation system used in conjunction with task analysis and behavioral objectives. The system required students to count fixed reference points on each numeral corresponding to its exact quantity. At the beginning of a 5 month program 2 of the children were unable to do any addition or subtraction on a prestest. One of these students attained 100 percent accuracy on mixed addition and subtraction problems at posttesting. All Ss demonstrated measurable performance increments along a learning continuum which reflected 4 developmental stages as the child moved from concrete to abstract conceptualization. Complex learning skills are possible with the primary EMR and may entail a broad range of arithmetic skills. (3 refs.)

Palos Verdes Unified School District
Rolling Hills, California

575 **STAINBACK, SUSAN B.; & STAINBACK, WILLIAM C.** A defense of the concept of the special class. *Education and Training of the Mentally Retarded*, 10(2):91-93, 1975.

A defense of the concept of the self-contained special classroom for EMRs focuses on shortcomings in practical implementation of special classes. The ideal special class, as measured by such components as skillful teaching, individualized programs, appropriate materials, small class size, supporting services, student selection, and labeling and planning time, has not been incorporated into the general educational system, and criticisms of special classes relate to the effectiveness of classes as they operate today. Although it is not suggested that the special class is the most appropriate administrative arrangement for all EMR models or that new models should not be examined, the effectiveness of special classes cannot be evaluated on the basis of currently available data. (13 refs.)

Division of Special Education
University of Northern Iowa
Cedar Falls, Iowa

576 **SOWER, RUTH; & COVERT, ROBERT.** Identifying preschoolers with special needs: a county-wide project to help plan future special services in the public schools. *Education and Training of the Mentally Retarded*, 10(2):84-90, 1975.

In a county-wide survey of handicapped preschool children designed to facilitate planning of public special educational facilities, data were collected from health and social agencies, and parents were contracted through a large-scale media campaign. Data are collected on all children from birth to 6

years old with MR, visual defects, hearing defects, speech problems, physical handicaps, brain damage and emotional disturbances as well as MR children over 6 who were not in school. The survey identified 492 handicapped children from birth to age 21 who were not yet in school, and 249 handicapped children under 6 years old. The largest single reported category was MR, with multiply handicapped the second largest category. Reliance on agency reports and parent responses to information appeals probably led to under-reporting of handicapped children. More accurate methods for collecting data on preschoolers with special needs include questions on census forms and requiring physicians, hospitals, and health agencies to report handicapping conditions. (18 refs.)

Department of Education
Evaluation Research Center
University of Virginia
Charlottesville, Virginia

577 **BAUM, DALE D.; ODOM, MILDREN; & BOATMAN, REX D.** Environment-based language training with mentally retarded children. *Education and Training of the Mentally Retarded*, 10(2):68-73, 1975.

Both short-term and long-term gains in language behavior were observed in 9 EMR children (ranging from mild to borderline MR) after a 6-week summer camp type activity designed to encourage students to verbalize reactions to a wide array of experiences with the natural environment. Pretest and posttest comparisons on a 72 item picture-stimulus instrument which related directly to curricular content indicated: 1) a doubling in the number of words and total number of sentences uttered; 2) an increase in sentence length from a group median of 5.7 words to 11.0 words; and 3) an increase in the number of nouns uttered from a median of 123 to 210. One year followup showed a slight decrease from immediate gains but retention of much of the gains. Language performance of EMR children can be significantly improved in terms of verbalization through a systematic, naturalistic program, and typical classroom experiences can help maintain improvements. (17 refs.)

Department of Educational Psychology
New Mexico State University
Las Cruces, New Mexico

578 **EDGAR, EUGENE; SULZBACHER, STEPHEN; SWIFT, PATRICIA E.; HARPER, CECELIA T.; ALEXANDER, BRUCE; & MCCORMICK, GRANVILLE.** Progress report of the Washington State Cooperative Curriculum Project. *Exceptional Children*, 42(3):170-171, 1975.

An educational computerized tracking system of sequenced skills with criterion tests is described. The Washington State Cooperative Curriculum Project (WSCC) is designed to be administered by teachers both to assess handicapped children and to provide ongoing evaluation. Assessment data are used to determine initial program placement for the children and to establish specific individual objectives. The ongoing data provide the teacher with information which can be used for program modification. The curriculum items consist of 2 parts: Objective Statements (OS), a catalog of student performances in 16 instructional areas; and Criterion Tests, which provide the operational definitions of the behaviors listed in the OS. The curricular system was designed to present an orderly sequence of precisely defined skills to provide a means for individual student programming, as well as to allow pupil progress data to be communicated easily among teachers and administrators. The effectiveness of the WSCC has been demonstrated in pilot projects during the past 2 years with more than 500 handicapped children. (4 refs.)

College of Education
Experimental Education Unit
University of Washington
Seattle, Washington

579 **MAYHALL, WILLIAM F.; JENKINS, JOSEPH R.; CHESTUNUT, NORMAN J.; ROSE, MARY ANN; SCHROEDER, KATHY L.; & JORDAN, BARBARA.** Supervision and site of instruction as factors in tutorial programs. *Exceptional Children*, 42(3):151-154, 1975.

Two studies on the effects of tutoring location and teacher supervision on the efficacy of cross-age tutoring for learning disabled children suggest that the site of tutoring is less important that the extent of teacher supervision. When third grade children were randomly assigned to tutoring in a resource room where there was no active supervision, or in the back of their classroom

where other activities were in progress, no differences were observed in relation to site of instruction. When treatment conditions were similar to those in the first experiment, but a resource teacher actively supervised the tutors, third grade students learned significantly more in the resource room than in the classroom. A resource teacher is in a favorable position to supervise tutoring actively; however, if direct service from a resource teacher is not available, classroom teachers should consider using cross-age tutoring for handicapped learners. (1 ref.)

Las Cruces Public Schools
Las Cruces, New Mexico

580 **NEWCOMER, PHYLLIS; LARSEN, STEPHEN J.; & HAMMILL, DONALD.** A response [to Research on Psycholinguistic Training]. *Exceptional Children*, 42(3):144-148, 1975.

A rejoinder is offered to Minskoff's critique of a review of studies related to psycholinguistic training. Minskoff challenged the conclusion that the effectiveness of psycholinguistic training has not been demonstrated, criticized the methodology of the studies which were reviewed, and set forth guidelines for psycholinguistic studies which involve the nature of the subjects, the treatment, and the experimental design. A recent study (1975) indicates that some of Minskoff's recommendations are based on faulty premises regarding the value of the Kirk-Osgood psycholinguistic constructs and the Illinois Test of Psycholinguistic Abilities. Although there is a need for well designed research in this area, the reported literature raises doubts about the efficacy of psycholinguistic training based on the Kirk-Osgood model of psycholinguistic deficits. (12 refs.)

581 **MINSKOFF, ESTHER H.** Research on psycholinguistic training: critique and guidelines. *Exceptional Children*, 42(3):136-144, 1975.

Hammill and Larsen's review (September 1974) of studies which attempted to train children in psycholinguistic skills using the Illinois Test of Pyscholinguistic Abilities as a criterion of improvement is critically discussed, and the conclusion that the effectiveness of psycholinguistic training has not been definitively demonstrated is challenged. The studies reviewed differed markedly with respect to the nature of subjects, the treatment, and the experimental design, with each of the studies including at least 1 methodological error. Research on the remediation of psycholinguistic disabilities should use only learning disabled subjects, should be evaluated in terms of 15 criteria, and should be assessed in terms of group and individual designs. Those with psycholinguistic disabilities can be trained, but training should be assessed in relation to various academic and social demands made upon the child at a particular age. (13 refs.)

582 **SOEFFING, MARYLANE Y.** Trends, issues and needs in mental retardation -- a conversation with Edwin W. Martin, Jr. and Raphael Simches. *Education and Training of the Mentally Retarded*, 10(1):36-45, 1975.

A conversation with Dr. Edwin W. Martin, Jr. (Associated Commissioner, Bureau of Education for the Handicapped) and Raphael Simches (President of the Council for Exceptional Children) suggested the directions the education of the MR will take in the future. Emphasis was on development of stategies for successful cooperation between public and private agencies; the need to overcome attitudinal barriers in order to implement early childhood programs and programs for the severely handicapped; and the importance of interactive and collaborative programs involving regular and special educators. The need for special educators to become involved in the political process and act as change agents was noted, as well as their need to place emphasis on prevention and amelioration of MR; more refined assessment procedures; career education; and social adjustment of MRs over age 21.

Council for Exceptional Children
1920 Association Drive
Reston, Virginia 22091

583 **BRADTKE, LOUISE M.; KIRKPATRICK, WILLIAM J., JR.; ROSENBLATT, KATHERINE P.; & BANNATYNE, ALEXANDER D.** Training institution and community-based educational staff to work with multiply handicapped children. *Education and Training of the Mentally Retarded*. 10(1):51-55, 1975.

A compact training model based on practical experience was developed to help meet the demand for individuals trained to work with SMRs and PMRs with multiple handicaps. The sequentially ordered training program (BKR training model) has demonstrated components which have proven successful in training institutional and community-based educational staffs to work with the multiply handicapped. These components include: orientation, observations of children (including task analysis; discussions; development of prescriptive teaching materials; role simulation; reinforcement techniques; individual conferences; intensive play with a child; parallel teaching; solo teaching; and self evaluation. New and existing programs for training to work with multiply handicapped children have been influenced by this model. (3 refs.)

Pediatric Care Center, Inc.
Special Education/Mental Retardation
University of Miami
Miami, Florida

584 **BROOKS, BENJAMIN L.** Applied teacher training – a consumer based approach. *Education and Training of the Mentally Retarded*, 10(1):46-50, 1975.

In response to criticism that students training as special education teachers do not get enough practical experience, an applied training program was implemented jointly by Appalachian State University and the public schools (probable consumer of new teachers). The approach integrates didactic with practicum activities through competency-tested training and field experiences. In addition to student teaching experiences in rural and urban settings, students spend 2 to 3 hours per week working with handicapped children in diverse situations in their sophomore year before special education is declared as a major. On-site training in junior and senior years is interchanged with returns to campus to pursue needed courses. Student and advisor evaluation of experiences and competencies before the end of the program enables students to fill gaps in formal course work or field experiences.

Division of Human Resources
Appalachian State University
Boone, North Carolina

585 **BELLAMY, TOM; & BUTTARS, KATHLEEN LAFFIN.** Teaching trainable level retarded students to count money: toward personal independence through academic instruction. *Education and Training of the Mentally Retarded*, 10(1):18-26, 1975.

Five TMR adolescents were successfully taught counting skills and the application of these skills in counting amounts of money indicated on simulated price tags. Instructional design consisted of baseline assessment of performance on all tasks in the instructional sequence; teaching academic skills; and application of skills with money counting through alternate testing and teaching. The program required 206 trials and approxiamtely 100 hours of instruction during 6 months of school attendance. Students advanced through the program by attaining a defined criterion performance on each task in the sequence. The objectives of the program were attained, with all 5 students learning to count any amount of change under $1.00 from a set of coins. Anecdotal evidence implies that the students can apply their new skill to a variety of situations outside the classroom. (6 refs.)

Department of Special Education
University of Oregon
Eugene, Oregon

586 **WICKER, PARTICIA L.; & TYLER, J. LARRY.** Improving locus of control through direct instruction: a pilot study. *Education and Training of the Mentally Retarded*, 10(1):15-18, 1975.

A 12-week study was undertaken to see if EMR children (CA 9-12) could learn adaptive behavioral responses and an awareness of the consequences of behavior through a sequential instructional program. Students were randomly divided into 2 groups, with experimental Ss receiving 30 minutes of special training daily to help them understand the consequences of inappropriate social behavior. Everyday conflict situations were dramatized to demonstrate the influence of actions on reinforcements as well as the behavior of others. Teaching techniques included role playing, pictorial illustrations of behaviors, and follow-up group discussions. Incentives for group participation were provided through praise and social reinforcement. Final data on 13 experimental children and 15 controls indicated that the experimental group

scored significantly higher (mean scores) on 2 dependent measures. General comments from the experimental teacher were very favorable toward the program. Curriculum designs should give increased attention to the personal-social needs of MRs. (18 refs.)

Hinds County School System
Jackson, Mississippi

587 **HURLEY, OLIVER L.** Reading comprehension skills *vis-a-vis* the mentally retarded. *Education and Training of the Mentally Retarded*, 10(1):10-14, 1975.

A comprehensive review of literature concerning reading comprehension skills of EMR children revealed a dearth of information concerning 3 guiding questions: which comprehension skills should be taught to MRs, the age at which skills should be taught, and the hierarchy of these skills. Although 75 pieces of relevant literature were found, only 5 began to provide answers to questions posed. These studies suggested that almost all reading comprehension skills are and should be taught to EMRs; that there is a close correspondence between the age at which instruction should begin and the age at which most of the children master skills (2 to 3 years after instruction began); and that there may be 2 hierarchies for ordering or reading comprehension skills: complexity and teaching order. More definitive research relative to research comprehension skills of the EMR is needed. (9 refs.)

Division for Exceptional Children
College of Education
University of Georgia
Athens, Georgia

588 **HARDMAN, MICHAEL L.; & DREW, CLIFFORD J.** Incidental learning in the mentally retarded: a review. *Education and Training of the Mentally Retarded*, 10(1):3-9, 1975.

A review of studies relating to the intentional and incidental capabilities of the MR tends to support an inverse relationship between motivation level of a child during directed instruction and his incidental acquisition rate. A high motivational level may narrow the child's focus of attention to the immediate task and inhibit his ability to respond to incidental cues in close proximity. Methodological weakness dispersed through the focus on the definitional components of incidental learning. Material designated as incidental should not be directly related to the learning task in any way, and criteria must be clearly outlined to determine the relevancy of material to the formal instruction. A possible way of maximizing intentional learning conditions without inhibiting incidental learning is to reduce the use of tangible reinforcers in directed learning tasks. Instructional techniques which will improve incidental learning include game learning programs and audiovisual methods. (15 refs.)

Department of Special Education
University of Utah
Salt Lake City, Utah

589 **KINGSLEY, RONALD F.; & KOKASKA, CHARLES.** Economic competency: implications for programs for the educable mentally retarded. *Middle School Journal*, 6(1):17-20, 1975.

An educational program designed to develop economic competence among the EMR is composed of 2 phases: classroom instruction in problem-solving and a work-study program utilizing economic rewards for completing work tasks. Studies on banking and savings, bills, borrowing money, budgeting, credit, home ownership, insurance, renting, shopping, taxes, and transportation may be included. Students develop competence in planning how to spend their salaries.

590 **KLEIN, ROSALYN; & YOUNGBLOOD, BRENDA.** New counselor strategies – implementing learning disability programs. *Resources in Education (ERIC)*, 11(2):63, 1975. 23 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58 plus postage. Order No. ED112328.

A paper delivered at the Annual Convention of the American Personnel and Guidance Association presents remedial techniques for dealing with children with learning disabilities. Techniques are directed toward visual and auditory modalities.

The program includes tests to discover the specific nature and degree of impairment and a questionnaire to be completed by the teacher describing details of the problem. When the difficulty has been diagnosed, the teacher, counselor, reading specialist, and other specialists prepare a detailed remedial program. Consultations are held periodically to assess progress made and to plan new approaches.

591 Colorado State University. *Vocational Education for Students with Special Needs; A Teacher's Handbook.* Altfest, Myra, ed. Fort Collins, Colorado, 1975. 120 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $5.70 plus postage. Order No. ED112090.

Sponsored by the Colorado State Board for Community Colleges and Occupational Education, this teacher's handbook comprises 7 chapters, a bilbiography, and an appendix containing sample assessment forms. The chapters deal with identifying disadvantaged and handicapped students, assessing their needs, common characteristics affecting learning in handicapped and disadvantaged students and appropriate learning styles, an annotated guide to instructional materials, procedures for individual instruction, local resource and service agencies, and student evaluation.

592 **DUSTIN, JOSEPHINE, et al.** *Training Procedure Manual for the Mentally Retarded.* Salem, Oregon: Fairview Hospital and Training Center, 1975. 237 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $12.50 plus postage. Order No. ED112530.

A training procedure manual for institutionalized moderately, severely, and profoundly MR focuses upon teaching activities for the following skill areas: motor development and awareness; toileting; eating skills; dressing; hygiene; grooming; clothing care; homemaking skills; scholastic skills; and survival, travel, and social skills. Tasks are broken down into sequential steps, and appropriate cue words are provided for the trainer. The manual also includes a training program for adults in learning how to deal with children.

593 **SCHRAG, PETER; & DIVOKY, DIANE.** The dossiers of children. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 6, pp. 175-207.

The first completely dossierized generation of American children is now growing up. Whereas previous generations had school records and, in some instances, juvenile court records or files in social agencies, both the nature of the data and the limitations of storage and retrieval made them perishable. Today, however, the casual interchange and, in many cases, the identity of the theories, labels, and characterizations of the educational, medical, and juvenile justice systems threaten to produce a single dossier of quasisynonymous labels--learning-disabled-hyperkinetic-predelinquent, or any combination of dozens of others, all of them legitimized by "diagnosis," "screening," and medical testing. Simultaneously, this generation of children is learning very early that there is nothing unusual about being watched, questioned, tested, labeled, and "treated," or about the fact that the results of all of this activity are stored and processed beyond the control of the individual. The Family Educational Rights and Privacy Act, passed by Congress in 1974, is likely to have a certain impact, but the chances of rigorous enforcement are slim, and it will be some time before the full effects of the law are felt.

594 *Yearbook of Special Education.* Chicago, Illinois; Marquis Who's Who, 1975, 600 pp. $29.50.

Current statistics and trends in education are provided for professionals working with the physically and mentally handicapped. Data are presented on educational facilities, pupil enrollment, and special education personnel, including: a list of associations serving the handicapped; a guide to producers and distributors of educational materials for the handicapped; selected public and Catholic special education programs and facilities in 6 categories of special education; information on special education teacher training; and data on school planning for the handicapped.

Contents: Special Education (General); Physically Handicapped; Blind and Partially Sighted; Deaf and Hard of Hearing; Emotionally Disturbed; Mentally Retarded; Speech Handicapped; Teacher Training; Associations and Agencies; Facilities and Programs; Materials; and Indexes.

595 **KIM, YOUNG KIL.** A comparison of two methods of teaching reading for trainable mentally retarded adolescents. *Dissertation Abstracts International*, 36(4):2134A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-22,276.

Eighteen TMR adolescents participated in a comparative investigation of rebus reading instruction as shown in the Peabody Rebus Reading Program and traditional orthography (TO) instruction as illustrated in the Edmark Reading Program. Each experimental program lasted for 32 days. Data used in the analyses were obtained from the tape-recorded interactional events which occurred in the classrooms and the pretest and posttest administrations of the Rebus and TO Word Recognition Test developed for the study. There was no significant difference in patterns of teaching between the Peabody Rebus and Edmark TO experimental sessions. A significant relationship was found between reading achievement and the experimental reading instruction for all Ss, but there were no significant differences in gain scores between the 2 methods as measured by the TO and Rebus Word Recognition Test. Stanford-Binet IQ or Peabody Picture Vocabulary IQ was the best predictor in basic reading development.

George Peabody College for Teachers
Nashville, Tennessee

596 **HERR, STANLEY.** The right to an appropriate free public education. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 9, pp. 251-267; reaction comment, 267-270.

Despite legal precedents requiring that appropriate educational programs be provided to all those who have been excluded traditionally from the school system as "uneducable," many American children who are suspected of being MRs, who are emotionally troubled, and who are profoundly handicapped are excluded from the very schooling which 48 states consider so important as to make it compulsory for 10 years of every child's life. Federal courts have required that placement be made within the context of a presumption that, among alternative programs of education, placement in a regular public school class with appropriate ancillary services is preferable to placement in a special school class. The opinion of the United States Supreme Court in *San Antonio School District v. Rodriguez* seems to suggest that some minimally adequate level of educational service requires constitutional protection. Waiting children need national legislation that will ensure prompt placement procedures and funding to monitor and implement this right. Bates calls on professional educators to take strong action to provide appropriate education for all children; Lippman calls for careful judgement about whether litigation, legislation, or administrative action is most appropriate in a given case. (72 refs.)

Balliol College
Oxford University
Oxford, England

597 **SORGEN, MICHAEL S.** Labeling and classification. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 8, pp. 214-244; reaction comment (Virginia Davis Nordin; Louis A. Bransford), pp. 244-250.

The parameters of MR civil rights are just now taking shape with regard to restrictions on zealous oversimplification of human differences through labeling and classification and the consequent deprivation of significant rights or privileges. Where classification schemes create disparities of educational opportunity and resultant differences in life roles after school, the equal protection clause of the fourteenth amendment provides an available means by which incorrectly classified and labeled students may try to realize their legal rights. Society accepts the current classification approach too easily. As a result, MR children and others are treated as being basically unmodifiable, and their low levels of performance are reinforced. The law as normative of social relationships must help society to reject this negativism and to adopt a new strategy aimed at augmenting the capacity

of MR citizens. Nordin emphasizes the impact of *in Re Gault* on school actions and elaborates on the significance of several cases cited by Sorgen. Bransford sees the problem as requiring new attitudes in and toward public education. (299 refs.)

Hastings College of Law
San Francisco, California

598 **FIDONE, GEORGE S.** Recognizing the precursors of failure in school. Early identification can minimize emotional harm. *Clinical Pediatrics* 14(8):768-770, 775-778, 1975.

Speech disorders, hyperkinesis, family history of reading disorders, and developmental lag are among the precursors of school failure which can be identified in the preschool years. Children who were born prematurely, those who are underage at the time of school entrance, and children with learning disorders related to child rearing practices are also predisposed to school failure. With awareness of the relationship between these high risk factors and future educational failure, physicians should be able to recognize signs and plan constructive intervention measures. Preventive measures include preschool language therapy, kindergarten attendance, medication, psychological counseling, and parent counseling. (21 refs.)

Dept. of Pediatrics
Wilford Hall
U.S.A.F. Medical Center
San Antonio, Texas 78236

599 **KUNTZ, JANET BETH.** A nonvocal communication development program for severely retarded children. *Dissertation Abstracts International*, 36(1):219A, 1975. 146 pages. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-14,366.

Nonvocal communication development was investigated in 14 SMR subjects who demonstrated limited communication skills. The subjects were divided into 2 groups, group A receiving training procedures utilizing abstract symbols arbitrarily assigned to represent specific words, and group B training procedures utilizing natural sign sketches representing specific words. The nonvocal program was divided into 3 phases: training programs for left to right sequencing of 4 color coded forms (I), training programs for matching symbols to stimulus pictures (II), and training programs utilizing fade and nonfade procedures for matching printed words to stimulus pictures (III). Group B required fewer trials than group Z to meet criteria for phase II. Group A required fewer trials than group B to meet criteria for phase II. Fade and nonfade procedures introduced in phase II showed no significant difference between groups to increase subject learning rate. All subjects learned to sequence an article, subject noun, auxiliary verb, and verb; all demonstrated functional comprehension of 5 nouns and 5 verbs. Approximately 2 hours of training time a month were necessary for subject to learn these communication skills.

Kansas State University
Manhattan, Kansas

600 **TURNBULL, H. RUTHERFORD, III.** *Legal Aspects of Educating the Developmentally Disabled.* Topeka, Kans.: National Organization on Legal Problems of Education, 1975. 21 pp.

The extension of the principle of egalitarianism to the developmentally disabled, particularly MRs, is a major legal development of the 1970's involving professional educators, state law, and court litigation. Equal protection, the "access" theory, due process, and procedural requirements are all related to the principle that all persons, however unequal they may be in terms of their development, should be treated equally in the sense of receiving equal opportunities. Professional educators and the courts have expressed this principle. Typically, the courts have set forth detailed procedural requirements for implementing a judicially recognized right to education, including notification of affected parties, evaluation and placement of children, periodic re-examination, and establishment of classification criteria. The case law on the right to education concerns the states as well, since almost all state constitutions provide for the education of children residing in the state. Most of the specific procedural and substantive changes in the law have been oriented towards establishment of a "zero-reject policy," a plan according to which all children have a right to a publicly supported education.

601 **GARRIS, RAYMOND P.** Developmental reinforcement and education. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) *Resources in Education (ERIC)*, 11(3):64, 1976. 21 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113856.

A young child learns to respond to various types of stimuli according to the hierarchical steps of a developmental model. Development occurs successively, beginning with the primary level and continuing on to the social, symbolic, and abstract levels, with each level dependent upon learning to respond to reinforcing stimuli at the previous levels. Learning problems such as hyperactivity may be the result of the selection of reinforcers at the wrong developmental level. Therefore, educators should emphasize a student's developmental level of responsiveness to reinforcing stimuli (such as the teacher's reaction to the child's behavior) as well as to eliciting stimuli (such as instructional materials or activities).

602 U.S. Education Office. The PASS Model Project: development, evaluation and dissemination of a service delivery system for learning disabilities. (Bureau of Education for the Handicapped.) Davis, Earl E. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 35 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113854.

The Psychoeducational Agency/School System (PASS) Model Project is currently providing full or partial services to approximately 152 learning disabled elementary school children. The project is aimed at revising the referral and assessment process within the school system, improving the self-concepts of PASS children, developing staff professionals to serve as better behavioral change agents, and offering a fully developed and evaluated model approach to learning disability that is applicable in a wide range of communities. The project involves the planning, implementation, and evaluation of a replicable delivery system of resource and special class services relating to children and their families, psychoeducational personnel, and research and development. It utilizes the facilities of a community-oriented psychoeducational agency, a school system using diagnostic and prescriptive methods, and a coordination mechanism linking the two systems. Initial PASS data indicate that learning disabled children in the project perform lower in verbal than performance skills, function slightly below the norm intellectually, possess a relatively normal self-concept, and perform significantly higher in mathematics than in reading.

Bureau of Education for the Handicapped
U.S. Office of Education
Washington, D.C.

603 U.S. National Institute of Education. Prototypes for teaching word meaning skills--synonyms--to learning disabled children. Waites, Jeremiah W. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 8 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113875.

The effects of 4 treatments (varying amounts of material to be learned, varying amounts of practice, varying stimulus familiarization, and varying association value) were evaluated in 4 studies comparing the learning of synonyms by learning disabled and normal children. The results were inconclusive regarding optimal amount of material to be learned at one time. Learning disabled students required 3 times as many practice trials as normal Ss. Increasing the stimulus familiarization did not significantly improve learning disabled Ss' mastery of synonyms. Both groups learned the high association synonyms more rapidly, although this treatment was more effective for normal children than for learning disabled children.

604 U.S. National Institute of Education. Prototypes for teaching word recognition-sight vocabulary skills to learning disabled children. Richmond, Bert O. (Paper pre-

sented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 7 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113870.

Research on the acquisition of sight reading vocabulary by learning disabled and normal children indicates that learning disabled children do not perform as well as normal children on discrimination learning (sight vocabulary) tasks but that treatment and practice produce an improvement in reading skills among learning disabled children. In particular, studies have measured the effects of such variables as mode of presentation, amount of practice, and redundancy.

605 **POST, CAROLE K.** The school resource program: alternative tutoring models for delivering supportive services to L.D. children in mainstream education. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 41 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.95, plus postage. Order No. ED113868.

The effectiveness of 4 alternative tutoring models for delivering supportive educational services to learning disabled children in regular elementary school classes was compared. The one-to-one tutoring model, rotating learning stations model (with a teacher-student ratio of 3-1), the open skills scheduling model, in which children rotate through individually assigned independent tasks or reading with the teacher, and the high intensity learning system model, involving the correlation of instructional needs with reading behaviors in a commercially published package, were all used at a St. Paul, Minnesota, elementary school within the context of a total school resource program. A 2-year study comparing the effectiveness of learning disabled high school tutors with adult tutors showed no significant differences, a study comparing the tutoring model with the rotating learning stations model indicated no significant differences, and a third study undertaken to evaluate the entire resource program showed greater than expected gains in reading, spelling, and mathematics.

606 U.S. National Institute of Education. Prototypes for teaching word meaning skills--homonyms--to learning disabled children. Lundquist, Gerald W. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 6 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113862.

Four studies compared the ability of learning disabled and normal students to learn the meanings of homonyms (words that sound alike but have different meanings) when presented in various modes. Homonyms were presented either in random order or in contiguous pairs, with illustrative sentences presented after the word (when in random order) or after the pair, and in the presence of context cues or without these cues. The results indicated that normal students learned at a higher rate than their learning disabled counterparts, who had to be provided with a pattern for organizing information. Context cues were a determinant of effective learning for all Ss, with context serving as immediate reinforcement for both groups of students. Ss learned paired homonyms more easily than homonyms presented in random sequence.

607 U.S. National Institute of Education. Prototypes for teaching sentence comprehension skills to learning disabled children. McBride, Ralph D. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 10 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113863.

Eight studies compared aspects of sentence comprehension skills in normal and learning disabled children. The effect of the transformation of kernel sentences to passive negative questions, the amount of feedback, and visual phrasing cues on sentence comprehension was investigated. The results suggested that normal children score higher on sentence comprehension than learning disabled children do, regardless of the type of reading task.

The rate of learning over the first trials was higher for normals than learning disabled children, although the learning rate of learning disabled Ss could continue to increase over trials after the normals' learning rate had levelled off. Passive negative questions were as easy to comprehend as kernel sentences for both groups of Ss. Visual phrasing cues did not affect sentence comprehension.

608 U.S. Education Office. Learning about living: youth and adult education on parenthood. (National Center for Improvement of Educational Systems.) Bessant, Helen P., ed. 129 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $6.97, plus postage. Order No. ED113914.

An instructional guide provides information on training young people and adults who may have children with learning problems. The guide includes 5 modules on the topics of child development (toilet training), home activities to enhance school performance (language development), planning and preparing inexpensive, nutritious meals (basic 4 food groups), sewing (taking body measurements), and selecting and pursuing a vocation (preparation for job interviews). The document provides pretests, content, learning tasks, evaluation, and resources (including books and films) for each instructional objective.

609 U.S. Education Office. A final report, 1969-75. (Norfolk State College. Education Professions Development Act Project.) (National Center for Improvement of Educational Systems.) Bessant, Helen P., ed. 58 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $3.32, plus postage. Order No. ED113916.

The final report of a 6-year Teacher Instructional Program (TIP) conducted to train regular classroom and other educational personnel to understand the emotional and educational needs of handicapped children in grades K-5 and of a Parent Education Program (PEP) operated jointly with TIP defines the goals of the project, the staff and organization, principles of participant selection, and dissemination of project activities and products. TIP was aimed at such goals as enhancing the skills of participants in diagnosing learning problems and was conducted through summer institutes and academic year seminars; resource services such as aid in developing learning centers were provided to participants. PEP activities included increasing participants' knowledge of consumer economics and related aspects of self-development training, a teacher's aide program, evaluation of participants' self-conepts, and appraisal of the program by participants.

National Center for Improvement of
Educational Systems
U.S. Office of Education
Washington, D.C.

610 **JONES, C. D., JR.** *Special Education in the States: Legislative Progress Report. Report 3.* Denver, Col.: Education Commission of the States, Handicapped Children's Education Project, 1975. 25 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113919.

Summarized versions of approximately 110 bills relating to the education of exceptional children that were introduced in the state legislatures in 1975 provide an overview of major legislation related to handicapped individuals. Bills are identified by number and sponsor, basic provisions, and status as of August 1, 1975. They are listed alphabetically by state under the following headings: census/registry/reporting; centers, commission, offices for special education services; certification of professional personnel; comprehensive special education services; early education services; enrollment limitations; expanded special education services; finance formulas/taxation; residency requirement for education services; rights; sanctions; state aid/categorical programs; state aid/general special education programs; state policy; and transportation aid.

611 Florida. Education Department. *Florida-Developed Products Listing: Education for Exceptional Students.* Fifth edition. (Bureau of Education for Exceptional Students.) Tallahassee, Fla., 1975. 154 pp.

Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $8.24, plus postage. Order No. ED113920.

Approximately 200 entries of instructional materials for use with exceptional children obtained from various exceptional child educational programs in Florida are listed alphabetically by title and are indexed by area of exceptionality, program source, and sponsoring school district. Each entry includes a brief annotation of the product and designates the sponsor, applicable areas of exceptionality, potential use, media format, availability, and a source person who may be contacted for additional information. All materials represented in the listing are available from the Education Clearinghouse/Information Center of the Department of Education.

Bureau of Education for Exceptional Students
Florida State Department of Education
Tallahassee, Florida

612 U.S. Education Office. *Teacher's Guide to an Educational Model for Autistic Children.* (Bureau of Education for the Handicapped, 1975.) Brown, Gerri. 193 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $9.51, plus postage. Order No. ED113921.

A guide for classroom implementation of a public school program for autistic and seriously emotionally disturbed children includes descriptive data on the typical behavior of emotionally disturbed children, management techniques for use in the classroom, and basic ideas concerning classroom organization, scheduling, teaching procedures, and in-service training. The Developmental Sequence Objectives and the Assessment Sheets provide behavioral objectives for the 6 major skill areas (behavioral, social motor, self-help, visual, and language skills, both expressive and receptive). Replicable record-keeping devices can be used to record students' progress in social and behavioral skills as well as in academic preparedness skills.

Bureau of Education for the Handicapped
U.S. Office of Education
Washington, D.C.

613 **JOHNSON, JOHN L.** A study of the special education placement procedures in Montgomery County, Maryland, public schools. *Resources in Education (ERIC),* 11(3):68, 1976. 52 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $3.32, plus postage. Order No. ED113888.

Three outside consultants were asked to evaluate the validity of current special education placement procedures and policies in Montgomery County (Maryland) public schools to determine their effect on minority students. Questionnaires were mailed to 396 families in the County, and in-service staffing conferences and area screening committee meetings were observed. No evidence of racial or socioeconomic class discrimination was revealed in the written policy and placement procedures of the schools or in the County 5-year Plan for Special Education Services, and most parents surveyed were satisfied with the placement procedures and their children's program. However, the results indicated that staff members had to develop greater sensitivity to minority issues during the initial screening and classification process, that improvement was needed in the quality of placement conference data, that testing policies and the use of test results needed clarification, and that County public school personnel had a low tolerance for students who exhibited behavior or background different from established community norms. The evidence supported recommendations in the areas of communication, school-by-school needs assessment, prereferral procedures, identification and classification procedures, staff development, testing and policy procedures, school medical advisors, parent concerns, programs, human relations, and public relations.

614 **IRACI, JOSEPH.** Individualized physical education curriculum materials for the trainable mentally handicapped. (Proceedings of the Special Study Institute, held at St. Bonaventure University, Olean, New York, May 8-10, 1975.) *Resources in Education (ERIC),* 11(3):68, 1976. 173 pp. Available fom ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113890.

Individualized instruction materials for aquatic skills, body management, fundamental skills (such as locomotion and object control), and health fitness skills were developed for TMR students at a special study institute devoted to the I CAN Project. The institute recommended the diagnostic prescriptive model and advocated continuous progress reporting to record student achievement for parents and students. Samples of lessons provide information on general directions, physical manipulation, environmental manipulation, modeling, and materials.

615 U.S. Rehabilitation Services Administration. Bio-engineering services to the developmentally disabled adolescent. Final report, 1975. (Division of Developmental Disabilities.) Mallik, Kalisankar; & Yuspeh, Sheldon. 89 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $4.43, plus postage. Order No. ED113892.

A multiphase 1-year demonstration project involving 24 developmentally disabled students (CA 9 to 20 years) with severe physical limitations was conducted to increase their educational and vocational possibilities through the use of cost-effective bioengineering techniques designed to modify their physical environment and to develop improved adaptive devices. Phase I consisted of student selection, parent education, and initial evaluation of individual functional abilities. Phase II included using specially designed or commercially available adaptive devices (such as contour seats and wheelchair ramps) to increase functional independence, developing recreational programs (such as a miniature golf course), measuring functional improvement in 50 self-care areas (among them, dressing and eating), providing vocational orientation programs (such as training in microfilming and 1-handed typing), evaluating Ss' functional and vocational potentials and recommending environmental and othotic (supportive device) adaptations, and the meeting of project advisors, staff members, parents, and students. The plans for the final phase of the project focus on a practical workshop to demonstrate the use of low-cost, simply designed bioengineering adaptations to increase the functional level and work capacity of the physically disabled.

616 **WILLIAMS, WES.** Basic components of instructional programs for severely handicapped students. Draft copy. *Resources in Education (ERIC)*, 11(3):67, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.95, plus postage. Order No. ED113878.

The 8 basic components of instructional programs for severely handicapped students involve determination of content, rationale, method, materials, measurement, and student performance. A task analysis orientation is vital to determine content, and a developmentally sound longitudinal curriculum will justify the teaching of a specific skill. Questions of methodology are approached best from an eclectic standpoint. It is important for students to be able to perform the given tasks without directions to do so from an authority figure. A skill is considered generalized when it is performed across persons, places, instructional materials, and language cues. Functional and nonfunctional tasks have an appropriate place in the instructional plan.

617 **POMERANTZ, DAVID J.** Manual skill training of retarded children. *Resources in Education (ERIC)*, 11(3):67, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113881.

In an ongoing pilot study, training procedures found successful with moderately MR and SMR adolescents and adults have been adapted to teaching TMR children (CA 6, 8, and 10 years) to assemble a 14-piece coaster brake. Modifications in the task analysis approach have included new formats and feedback strategies. Preliminary data indicate a slow but regular rate of progress in Ss' skill acquisition.

618 **BAILEY, CONSTANCE.** Curriculum guidelines for teaching profound and severely retarded students (I.Q. under 40) including those with physical handicaps. *Resources in Education (ERIC)*, 11(3):67, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $1.58, plus postage. Order No. ED113882.

Curricular guidelines for the teaching of PMR and SMR students with and without physical handicaps specify basic aims and objectives and emphasize awareness (of such stimuli as noises and colors), motor skills for the cerebral palsied (including taking a slow, deep breath and holding it), stages of walking, behavior modification, ocular motor coordination, rhythm therapy (such as marching to music), and swimming (also for the multiply physically handicapped).

619 **DUFFY, EUGENE CAHILL.** The emerging role of the learning disabilities teacher consultant in the elementary schools of suburban Essex County, New Jersey. *Dissertation Abstracts International*, 36(3):1204A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-18,910.

The perceptions of elementary school principals, school psychologists, and the learning disabilities teacher-consultants themselves in the elementary schools in suburban Essex County, New Jersey, concerning the evolving role of the learning disabilities teacher-consultant in selected tasks, were assessed through a task performance questionnaire. The perceptions of the role of the learning disabilities teacher-consultant were examined in terms of the 5 role dimensions of diagnostician, programmer, consultant, teacher, and child study team member and were evaluated according to the importance of each task and the frequency performance of each task. On importance of task, all respondents had significantly different perceptions regarding the role of the teacher, whereas school psychologists differed significantly in their perceptions of the roles of consultant and child study team member. Significantly different perceptions were generated by the total of all responding groups regarding the frequency of performance of the task of teacher, and by school psychologists regarding the frequency of performance of the programmer role. It was recommended that the concept for the role of the learning disabilities teacher-consultant be standardized and that developmental training programs for these teacher-consultants emphasize the role of programmer.

Fordham University
New York, New York

620 **SCOTT, PATSY LOU.** Contingency contracting techniques with junior high school educable mentally retarded. *Dissertation Abstracts International*, 36(3):1402A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-19,705.

The effect of contingency contracting techniques on reading performance, receptive vocabulary, mathematics, spelling, and general information was studied with 40 Ss from EMR classes in 2 junior high schools. Ss were divided by grade and assigned randomly to 2 control and 2 experimental groups. Pre, post, and retention achievement tests were administered, and analysis of variance was employed. Only reading performance was improved significantly.

Brigham Young University
Provo, Utah

621 **BRADLEY, THOMAS B.** Perceived responsibilities of home and school for the education of severely mentally retarded children. *Dissertation Abstracts International*, 36(3):1429A-1430A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-19,732.

Seventy-one parents of SMR and PMR children, 55 teachers of these children, and 29 supervisors of these teachers from 15 randomly selected intermediate units of Pennsylvania were polled by questionnaire on their views regarding responsibility of the home and school for the accomplishment of 10 educational objectives with academic connotations and 10 educational goals with a self-care orientation. On the basis of the use of a model describing service delivery as a function of the criteria of service availability and acceptability, it was seriously doubted whether the disposition criterion had been met and whether service delivery had been consummated under the Pennsylvania Right to Education Consent Agreement.

Pennsylvania State University
University Park, Pennsylvania

622 **MASTALI, MEHDI.** A program for Iranian special education: the adaptation of a California course of study for the trainable mentally retarded to Iranian society. *Dissertation Abstracts International*, 36(3):1438A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-19,120.

Each area and goal of a California course of study for TMRs was examined and related to Iranian social, economic, and educational factors, and sources from Iran, the United States, and the international literature on special education were reviewed for means of modernizing traditional patterns. Similar skills for MRs were suggested for United States programs in social, emotional, and academic areas, and California programs were found to reflect trends towards an individualized, student-centered, integrated system that emphasized these skills. Iranian factors relating to special educational development reveal a changing Middle Eastern society still influenced by traditional patterns. The adaptation of the California course of study for TMRs provides a modernized program stressing learning theory and student-oriented approaches, suggesting a more active teacher role, and involving students' families and the community to a large extent. While Iranian cultural factors limit the implementation of this program in its entirety, the adapted course of study may serve as an initial step in the modernization of Iranian special education.

623 **LAMPORT, LANCE CLIFFORD.** The effects of a specific perceptual-motor physical education program on the self-concept of children with learning disabilities. *Dissertation Abstracts International*, 36(3):1436A-1437A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-18,636.

The effects of a 16-week perceptual-motor physical education program on the improvement of self-concept and the ability to perform 5 motor tasks were investigated with 102 male and female elementary school children (chronological age 7 to 9), 59 of whom participated in a specific perceptual-motor physical education program (experimental Ss) and 43 of whom were involved in a regular physical education program. Both groups were administered the Thomas Self-Concept Values Test and Five Motor Tasks and then participated in a special or regular 16-week physical education program; posttests were administered at the conclusion of this period. The 8-year-old experimental group for boys showed significant improvement in self-concept as compared with its control counterpart; there were no significant differences in self-concepts for the girls. The 7-year-old and 9-year-old experimental group boys and girls each improved significantly in their ability to perform a motor task. The 8-year-old experimental group boys improved significantly in 2 tasks, while the findings for the girls were not significant. Three correlations between motor tasks and self-concept in the experimental group for boys were significant, whereas only manual dexterity was significantly related to self-concept for the girls.

University of New Mexico
Albuquerque, New Mexico

624 **SUND, MARY ANN NIENABER.** A comparison of attitudes of general education teachers in schools with different special education delivery systems, toward the educable mentally handicapped. *Dissertation Abstracts International*, 36(3):1441A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,459.

The attitudes of general education teachers towards placement of the educable mentally handicapped (EMH), abilities of the EMH, general teacher competency to teach the EMH, and concessions to be made if EMH children are placed in regular classes were assessed with a self-administered questionnaire, the Teacher Opinion Check. Four null hypotheses related to attitudinal differences were tested, and none was rejected. The obtained consistent response pattern indicated that the greater the number of course hours in special education, the more positive the attitude towards placement of the EMH in regular classes, use of supportive services, and confidence in the teacher's own ability to instruct the EMH.

University of Michigan
Ann Arbor, Michigan

625 **WARFIELD, GRACE J.** Effects of an educational program for parents of retarded children. *Dissertation Abstracts Inter-*

national, 36(3):1444A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,580.

Sixty-one mothers from the Minneapolis, Minnesota, metropolitan area with an MR child enrolled in The Sheltering Arms Day School and Research Program for MR Children for at least 2 years between 1955 and 1971 participated in an educational program which provided information about MR through lectures and informal discussion, individualized conferences with professional staff, and opportunities for observation and participation in a school program. Ss were interviewed with The Sheltering Arms Parent Interview Schedule. Statistical analysis showed a significant relationshhp between professional help from the director and teachers in individual conferences and the mothers' perceived benefits in management of the MR child, resolution of family problems, and improved feelings of self-worth. The contributions of the social worker were significantly less helpful and were usually associated with medical services and the problems of normal siblings of the MR child. Program participation was associated with increased activity in community organizations and volunteer work for some of the mothers.

Yeshiva University
New York, New York

626 **WILLIAMS, WAYNE WESTON.** A comparison of concurrent and successive procedures in teaching severely handicapped students to differentially respond to individual components of language cues. *Dissertation Abstracts International*, 36(3):1444A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-16,342.

The relative efficiency of a successive-concurrent procedure and a concurrent procedure designed to teach SMR students noun tasks (more-tasks) and to teach differential responding to 4 different verb components of verbal language cues ("Point to more," "Give me more," "Take more," and "Cover up more") was compared. The effect of instruction in a successive procedure on subsequent performance in a concurrent procedure was also evaluated. The results indicated that both procedures were effective in teaching noun tasks and differential response and that the concurrent procedure might be more efficient than the successive-concurrent procedure. It was found also that students did not learn to respond differentially to individual components of verbal language cues in the successive procedure but did learn this in the concurrent procedure. The data suggest that more exposure to language cues as they occur in many instructional settings does not necessarily ensure that students are learning to respond differentially to the individual components of those cues.

University of Wisconsin
Madison, Wisconsin

627 **BOCK, FRANK CHARON.** Educational specifications for a school facility designed to serve children with learning and behavioral disabilities. *Dissertation Abstracts International*, 35(12, Pt. 1):7752A-7753A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-12,704.

The types of classroom structure, methodologies, and curricula which are effective in working with children with learning and behavioral disabilities were determined, and the data were translated into relevant educational specifications for Riverside School on the campus of Miami (Ohio) Children's Center, a county children's institution. The physical limitations, personnel, projected enrollment, and the IQ, abilities, and concomitant medical treatment programs of the anticipated school population were considered. Primary ideas and relevant information were accumulated from a variety of authoritative sources. The new Riverside School was designed not only to serve the educational needs of children in residence at Miami Children's Center but also to serve children on a day-care basis and to provide multiple resources (recreational, prevocational, leisure, and food services) to children of all ages on a round-the-clock basis.

University of Toledo
Toledo, Ohio

628 **BAUM, RICHARD BRUCE.** The efficacy of an anticipation game in increasing teachers' understandings of educable mentally retarded children. *Dissertation Ab-*

stracts International, 35(12, Pt. 1):7752A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-5591.

The ability of teachers to increase their understanding of EMR students by playing a game designed to develop their anticipation or prediction skills was demonstrated with 30 junior high and 30 senior high school special class teachers. The 2 developmental phases of the study involved the acquisition of a body of normative data through the administration of a 70-item test to 290 secondary level EMR children and the design and construction of an anticipation game incorporating the student response data to the test. The 2 evaluative phases entailed assessment of teachers' anticipation efficiency as they acquired experience playing the game and evaluation of their predictions of the responses of children selected at random from their own classes. In each group, 15 experimental group teachers played 30 rounds of the anticipation game, while 15 control group teachers played a game not designed to develop anticipation abilities. Within the context of the anticipation game, dyadically grouped (by participants) experimental teachers made significant increases in their prediction accuracies as a function of the number of rounds they played; all teachers were able to predict pupil responses with almost 60 percent accuracy. However, the anticipations of experimental and control group teachers were not significantly different, an indication that the skills developed through the treatment did not transfer to teachers' anticipations of their own pupils. Teachers gave more accurate predictions of higher-IQ than of lower-IQ EMR students.

Indiana University
Bloomington, Indiana

629 **SURBER, JOE ROBERT.** A field study of the special education process of learning disabled students. *Dissertation Abstracts International*, 35(10):6543A-6544A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-8900.

The interaction process between learning disability (LD) teachers and LD pupils in a self-contained learning disabilities classroom was described. Students were 11 LD Ss who had just entered the half-day LD classroom for at least one year (Group II). The study was conducted in 2 phases over a 1-semester period in a middle-sized community in north central Oklahoma. Group I LD recommendations, some coming from testing reports that were 2 years old with no follow-up evaluations, were followed a few times at the beginning of the study for 10 of the 11 cases. The LD teachers' aide appeared to be influential in the teaching process. The formative assessment observations indicated twice as many feedback behaviors by LD teachers as modifications of instructions. The teachers' affective behaviors were low, and pupils' enthusiasm was low, whereas the pupils' attending and responding to task assignments during formative assessments were high. No formal tests or procedures for summative assessments were established, and an LD pupil's expressed desire regarding his placement was a strong influence in the decision-making process of the summative assessment. All 6 Group II students and 2 Group I students in the summative assessment phase had adequate self-concepts as measured by the Piers-Harris Inventory. Program and research recommendations were given.

Oklahoma State University
Stillwater, Oklahoma

630 **CHEONG, LAI MOOI.** A comparative study of children in self-contained special education classrooms with children in special education resource rooms with regard to the relationship between self-concept and achievement, sex, age, and intelligence quotient. *Dissertation Abstracts International*, 35(10):6539A-6540A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-9068.

The relationship of the self-concept and achievement of minimally brain injured children (CA 8 through 13 years) in self-contained classrooms and age-matched children with language and/or learning disabilities in special education resource rooms was studied. Self-concept was measured by the total score on the Piers-Harris Self-Concept Inventory, and Standard Scores on the Wide Range Achievement Test were used as an index of measured achievement. Statistical analysis indicated a slight positive significant relationship between achievement and general self-concept for the integrated group and a slight positive

significant relationship between achievement and the anxiety dimension of the Self-Concept Inventory. However, no differences were found between self-concept and achievement, and achievement and each of the dimensions of self-concept, between the self-contained group and the integrated group, and no differences were seen between CA, IQ, and sex and self-concept between and 2 groups. The results suggested that the integrated group views itself more positively without the social stigma of being labeled and that a low anxiety level is associated with higher performance.

Texas Woman's University
Denton, Texas

631 **WALTON, HENRY HARRISON.** A study of motor deficits and remediation for learning disabled students through remedial physical education. *Dissertation Abstracts International*, 35(10):6499A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-9614.

Perceptual-motor deficits were identified in 23 students from learning disability classes, and a remedial physical education curriculum designed to reduce these deficits was administered. Twenty-three students from regular classes comprised the control group. Analyses of variance and covariance showed that the experimental Ss improved significantly in 4 of the 5 deficit variables and retained a higher level of performance at the end of the study. Experimental Ss approached, and in one variable surpassed, the mean scores obtained by control Ss at the posttest stage of the study. Experimental Ss did not demonstrate an improved self-concept or a more mature games choice outlook at the conclusion of the study.

University of Southern Mississippi
Hattiesburg, Mississippi

632 **CLARK, LESTER.** The effect of a short term intensive enrichment program on the reading improvement of the educable mentally retarded. *Dissertation Abstracts International*, 35(10):6445A-6446A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-8740.

The effects of an intensive enrichment program on the reading progress of 15 EMR middle school students as compared with the progress of 15 EMR students in a traditional educational environment were investigated. Experimental Ss were exposed to new aesthetic experiences for 8 weeks; in conjunction with each experience, reading was taught, and stories were developed by the Ss for reinforcement. At the conclusion of the program, all Ss were tested with the Gates-MacGinitie Reading Test, the Dolch Basic Vocabulary Test, and the Informal Vocabulary Test. No significant difference was found on any of the instruments, and it was concluded that no significant differences existed between the experimental and control groups following administration of an intensive enrichment program.

Oklahoma State University
Stillwater, Oklahoma.

633 **RICHARDS, CHARLOTTE JEAN.** Role conflict concerning teachers of the mentally retarded and its relationship to confidence in leadership, effectiveness, and satisfaction. *Dissertation Abstracts International*, 35(10):6407A-6408A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-2477.

The relationship between the role conflict experienced by special education teachers and their job satisfaction, effectiveness, and confidence in the principal's leadership was studied among 67 teachers of MRs in nonurban Wisconsin schools and the principals of these schools. The perceived role of the special education teacher was investigated within the context of social systems theory and the major dimensions of "nomothetic" and "idiographic" as developed by Getzels and Guba. (Nomothetic behavioral styles are patterned after the guidelines set forth by the institutional dimensions of the model, while idiographic behavioral styles are individualistic.) Members of the low role conflict group expressed a higher degree of satisfaction with their role than did members of the high conflict group. Members of the low role conflict group also were rated by their principals as more effective teachers than their high role conflict counterparts and expressed more confidence in the leadership of their principals. Teachers with more than 1 year of teaching experience were more likely to be members of the

low role conflict group than were teachers with 1 year or less of teaching experience. Chronological age and sex were not related to role conflict at a statistically significant level.

University of Wisconsin
Madison, Wisconsin

634 **SCHELLY, JOAN DUBOSE.** Normal and retarded subjects' comprehension of selected sentence transformations under two methods of learning. *Dissertation Abstracts International*, 35(10):6373A, 1975. 278 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-8206.

The performance of a total of 116 MR and normal pupils in the comprehension of relative clause transformations (1) under inductive and deductive methods of learning and (2) when given instruction in the inductive method of learning using simulated nouns was investigated. Ss were MR pupils, younger intellectually normal pupils matched for MA with the MR pupils, and older intellectually normal pupils matched for CA with the MR group. A treatment x levels x trials design was employed. In the first study, results of analysis of variance and tests indicated that only the older normal Ss exhibited significant learning across trials, while there was no significant difference between instruction methods. In the second study, scores of the older normal Ss were significantly higher than those of the other 2 groups. An item analysis showed that the older normal Ss employed syntax as a guide to comprehension more frequently than the younger normal or MR Ss, who were more influenced by position and semantic associative value of possible answer choices than were older normal Ss.

University of Georgia
Athens, Georgia

635 **CARLSON, NANCY ALLAN.** Using the creative strengths of a learning disabled child to increase evaluative effort and academic achievement. *Dissertation Abstracts International*, 35(9):5962A-5963A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-7135.

A special program planned and implemented with a young learning disabled child was evaluated for its effect upon academic achievement. In 3 baselines periods, alternate or the same forms of 15 research instruments were used to measure 34 research variables. Two successive treatment programs were conducted to create an environment that would stimulate creative thinking in the child and allow utilization of these creative thinking abilities to activate evaluative effort. Of the 10 measures used to assess change in academic achievement, 5 gave results indicating improvement, 3 gave results indicating no performance change, and with 2, the child was performing at competency level on the pretest. On the basis of the figural and verbal standardized measures of creativity selected for the study, a profile of creative strengths was created for the child. The measures used to assess the child's evaluative effort seemed to indicate a rather substantial improvement in her behavior.

Michigan State University
East Lansing, Michigan

636 **HESTER, CALLIE BURNETTE ROBINSON.** The development and implementation of a program for children with learning problems. *Dissertation Abstracts International*, 35(7):4046A-4047A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-715.

The impact of a 3-year experimental pilot program developed for children with problems that interfered with learning in a regular school setting was assessed. Housed in an elementary school in a suburban western Wayne County (Michigan) city, the Adjusted Studies Curriculum utilized all classroom facilities and teachers, with participating children spending a maximum of one-half day and a minimum of 1 hour a day in a special classroom and the balance of the day in a regular classroom or other suitable environment. Analyses of obtained data showed the program to be successful in building self-esteem and establishing better behavioral patterns. Self-esteem was correlated positively with achievement. The interdisciplinary team approach proved invaluable to staff and parents as well as to children. Children in the program made higher gains on the Frostig Visual Perception Test (highest on the Eye-Hand Coordination subtest) than on the Stanford

Achievement Test. The program was more highly successful with children in the primary grades, an indication that the earlier the child with learning problems is identified and placed in such a program, the better his chance for scholastic achievement will be.

University of Michigan
Ann Arbor, Michigan

637 **RAGSDALE, DAVID V.** An individualized language program for trainable mentally retarded minors. *Dissertation Abstracts International*, 35(7):4289A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1903.

The effect of an individualized language program on the language skills of 28 elementary-age TMR students as compared with a similar group of 25 students who did not participate in this kind of program was studied. Ss in both the experimental and control groups belonged to brain damage, Down's syndrome, familial, and unknown etiological subgroups. The experimental group improved language skills significantly. In some cases, the degree of improvement varied among the etiological subgroups between the experimental and control Ss.

Brigham Young University
Provo, Utah

638 **LICHTMAN, DAVID ISIDORE.** A follow-up study of an experimental curriculum for rural educable mentally retarded students at the secondary level. *Dissertation Abstracts International*, 35(7):4286A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1068.

Twenty-seven experimental-group and 21 control-group rural EMR Ss attending public junior high school from original experimental and control groups of 60 students each were studied for the effects of the use of an experimental curriculum including components of teacher re-education and materials selection. Follow-up occurred 12 months after the initial posttests and removal of the experimental group from the curriculum. The Wide Range Achievement Test, the Geist Picture Interest Inventory, the Demos-D (Dropout) Scale, and school attendance records were used for evaluation. Academic achievement differences in reading and arithmetic, due primarily to losses on the part of control Ss and some gains by experimental Ss, were even more extreme at the end of the follow-up period. No significant differences were found at the .05 level that were attributable to program methododology. Analyses of attendance patterns indicated no differences at the end of the follow-up period, but this finding may have been due to the possiblity that the chronic absentees dropped out of both groups.

University of Southern California
Los Angeles, California

639 **BRAWLEY, OLETHA DANIELS.** A study to evaluate the effects of using multimedia instructional modules to teach time-telling to retarded learners. *Dissertation Abstracts International*, 35(7):4280A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1010.

Two groups of MR children were pretested and posttested with Buck's Time Appreciation Test, Stanford Achievement Test (Primary Level I), and A Criterion Reference Measure, and the experimental group was exposed to Brawley's Experimental Sequence on Time-telling for 15 days. The results of multiple regression analysis revealed significant differences between the groups' mean gains on 5 of 11 achievement variables, with the experimental Ss making significant gains over the control Ss. The analyses also showed a significant relationship between IQ and 4 of 11 achievement variables.

University of Houston
Houston, Texas

TREATMENT AND TRAINING ASPECTS – Psycho-social

640 **ALCORN, LELA ANN PIKE.** The effects of a selected curriculum upon social emotional attitudes of educable mentally retarded pupils. *Dissertation Abstracts International*, 36(4):2132A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-22,486.

EMR pupils within a special education program at the primary (grades 1-2) and elementary (grades 3-5) levels were exposed for 7 weeks to the Development of Understanding of Self and Others (DUSO) program, a special curriculum designed to foster development of personal-social attitudes among elementary school pupils. Changes in personality traits were measured with the Children's Personality Questionnaire. Differences in personality profiles of MR Ss and their counterparts in regular classrooms were slight or negligible. DUSO did not appear to have a significant impact on the Ss within the limitations of time and instrumentation included in the study.

University of Southern Mississippi
Hattiesburg, Mississippi

641 **LONGHI, PAMELA; FOLLETT, REITA; BLOOM, BARBARA; & ARMSTRONG, JENNY R.** A program for adolescent educable mentally retarded. *Education and Training of the Mentally Retarded*, 10(2):104-108, 1975.

A color-sound film was developed to inform adolescent EMRs on the legal consequences of drinking under the legal age and the potential hazards of drinking. Material was modified on the basis of pilot testing of 41 students (CA 10 to 19) from 4 Wisconsin schools. The film was more successful in disseminating information on the legal consequences of acts than it was in changing attitudes. Highest posttesting increases were associated with legal age of drinking, with film modifications focusing on portrayal of consequences associated with drinking and driving. The script was changed to stress the possibility of personal injury and to link the accident more directly to beer drinking. Although desired levels of learning were not achieved, 45 percent of posttest answers related directly to specific objectives of the programs. The highest response frequency to a question about what Ss had learned from this film related to "not to drink and then drive" (26 percent). (1 ref.)

Special Education Instruction
Materials Center
University of Wisconsin
Madison, Wisconsin

642 **HOOVER, TODD; GONTER, MARTHA; & OPOCENSKY, VIRGINIA.** Field trips with video letters. *Teaching Exceptional Children*, 8(1):10-11, 1975.

Exchange of video letters between groups of children in different geographical regions can expose children with special needs to new communities, different environments, and cultural environments and provide practicial experience in content selection, composition, and planning. Video letters are videotapes planned and developed by a group of children and exchanged with a group of children in another area. Visual and auditory information is incorporated into video letters which enables students to introduce themselves, their communities, and their interests in depth. Teaching strategies related to the production of video tapes can be implemented on levels which allow for the gradual assumption of more student planning and problem solving.

Specialized Office for the Deaf
and Hard of Hearing
175 Nebraska Hall
University of Nebraska-Lincoln
Lincoln, Nebraska 68508

643 **DAVIS, DANIEL H.** The balance beam: a bridge to cooperation. *Teaching Exceptional Children*, 7(3):94-95, 1975.

In addition to its value in improving problems of dynamic balance in some handicapped children, the balance beam can be used to increase social interaction and cooperation between children with behavioral disorders. A series of dual balance beam exercises was presented to multiply handicapped, brain damaged, and autistic children in a special school after they had successfully performed solo lead up activities on the beam. Dual exercises, entailing tasks which require mutual dependence for successful completion, resulted in relatively high levels of cooperation and increased eye contact. Increased social interaction was exhibited in other school tasks such as moving equipment or materials and in prevocational workshops. The concepts learned from these exercises have implications for vocational as well as social training.

Department of Gross Motor and
Recreation
Benhaven
New Haven, Connecticut

644 **BORDWELL, MARTHA.** A community involvement program for the trainable adolescent. *Teaching Exeptional Children*, 7(4):110-113, 1975.

Twenty-two TMRs participated in a program designed to: 1) expose them to community facilities and activities; 2) maximize their independent use of these facilities; and 3) teach socially appropriate behavior. Specific goals and objectives were developed relating to personal appearance, transportation use, street behavior, behavior in public facilities, and safety behaviors. Classroom activities such as role playing, drill, and post-outing discussions supplemented ventures such as shopping, social visits, library trips, and bowling. Older students (17 to 22 years old) spent 4 consecutive weeks in the community, and younger students (13 to 16 years old) spent 2 weeks in the community. All students had to meet basic objectives (dressing appropriately, carrying adequate money, and having identification) before leaving for outings. Evaluation on the basis of pretests and weekly tests indicated that development of specific behavioral objectives can aid in the teaching and assessment of social skills in TMRs.

College of St. Thomas
St. Paul, Minnesota

645 **WEHMAN, PAUL H.** Toward a social skills curriculum for developmentally disabled clients in vocational settings. *Rehabilitation Literature* 36(11):342-347, 1975.

Because a wide discrepancy between the marketable skills of MRs and their performance on the job may result from deficits in social skills, a hierarchically sequenced curriculum is proposed to transmit skills necessary for successful vocational adjustment. Skills, arranged on the basis of increasing complexity, are encompassed within 4 levels: personal care, primary interaction, job and community survival, and advanced interaction (including cognitive-oriented skills such as problem-solving and trust). Rehabilitation counselers and workshop supervisors should take an active role in teaching social skills as well as work skills. Specialists to monitor and train clients in social behavior should be hired by vocational training centers. (2 refs.)

Department of Studies in Behavioral
Disabilities
Waisman Center
University of Wisconsin
Madison, Wisconsin 53706

TREATMENT AND TRAINING ASPECTS – Occupational

646 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Introduction to occupational therapy. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children*. Baltimore, Maryland: University Park Press, 1976, Chapter 1, pp. 1-26.

The role of the occupational therapist continues to expand, as these specialists provide increased services to a broad population requiring physical as well as psychological and social assistance and accomplishment. The major goal of occupational therapy in the treatment of MR is to evaluate gross and fine motor skills, perceptual skills, activities of daily living, and personal-social and communication skills. Frequently, checklists or standardized tests are used for evaluation. Some of the main objectives in treating perceptual-motor deficits include increasing body awareness, normalizing muscle tone, and improving motor planning. Fine, gross, and perceptual motor checklists can be administered by the certified occupational therapy assistant, with final interpretation left to the registered occupational therapist.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

647 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** *Occupational Therapy for Mentally Retarded Children*. Baltimore, Maryland: University Park Press, 1976, 226 pp.

Guidelines for occupational therapy aides and certified occupational assistants are provided. An introduction to MR and occupational therapy is given to enable persons engaged in a training program to function as occupational therapy aides. Within the training program, aide responsibilities and performance goals are presented in the 3 general categories of patient transfer and transportation, preparation for activities, and construction of assisting devices. The performance goals for the certified occupational therapy assistant are divided into the 3 major areas of training; self-help skills, instruction in craft activities, and reporting.

648 **MENDOLA, CHRIS.** *JESSE Of Marion County: Job Employability Skills for Special Education: "A Tenderfoot Tryout for Teachers in Secondary EMR."* Ocala, Fla.: Marion County Board of Public Instruction, 1975. 36 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price MF $0.76; HC $4.43, plus postage. Order No. ED115006.

Instructions and diagrams for building learning shelves for Job Employability Skills for Special Education project (JESSE) are provided for students and teachers in secondary EMR programs. Workshop objectives, equipment, and materials required and areas of evaluation are outlined. An evaluation sheet of employment skills is provided, as well as information on printed and audiovisual educational materials, related vocabulary words, and curriculum skills correlated with project tasks.

649 **CLENNON, SHEILA E.** Training students for employment. *Teaching Exceptional Children*, 7(3):106-107, 1975.

A task-oriented vocational program for a 15-year-old learning disabled girl with adequate social skills was designed and implemented within the school environment. The student, who functioned at a fifth grade academic level, selected teacher's aide as a potential career. Training focused on 1 of 7 component tasks (supervising the activity period in a special education class) which was further broken down into specific tasks. Informal planning sessions, identification of specific strengths and weaknesses, and immediate feedback after each activity period were among instructional techniques. A simple rating scale completed by the teacher after activity sessions

indicated steady improvement for each task and each activity. Vocational training programs within the school environment are a convenient means of acquainting students with various vocational experiences, familiarizing them with work attitudes, and effecting a helping relationship between children with similar problems. (1 ref.)

Secondary Classroom
Experimental Education Unit
University of Washington
Seattle, Washington

650 **WEISENSTEIN, GREG R.** Using a pictorial job training manual in an occupational training program for high school EMR students. *Education and Training of the Mentally Retarded*, 10(1):30-35, 1975.

A project designed to demonstrate the feasibility and effectiveness of short-term community-based vocational training for MRs developed a pictorial job training manual to help EMR girls successfully compete with more capable job seekers and gain employment as hotel or motel maids. Major components of the program were: 1) in-class training at a special education Home Living Center; 2) on-the-job training; 3) a slide presentation of job skills; and 4) a training manual illustrating maids performing routine tasks. After a 5 week training program, the 8 participants experienced a 50 to 75 percent reduction in time on many job phases. Transfer occurred between the training and home environment. A subjective analysis of instructional materials by project and motel staff indicated the training manual was the most valuable medium. Although only 1 trainee was employed in a motel at 1 year follow-up (3 had held part-time summer jobs), many could be employed as a result of training.

Habilitation Personnel Training
Project
University of Kansas
Lawrence, Kansas

651 **FLERES, CAROL N.** An experiment in the pre-occupational education of mentally retarded on the junior high school level. *Education and Training of the Mentally Retarded*, 10(1):26-29, 1975.

To help MR students develop a better match between their own capabilities and an occupational choice, a multioccupational program to meet the needs of the MR was designed through the cooperation of the public school and a vocational center. Five broad areas selected for the program were health services, offset printing, auto mechanics, cosmetology, and electronics; students were introduced to these areas through simulation of realistic experiences. Objectives were developed to acquaint students with basic skills, a behavioral checklist was developed relating to work attitudes and habits, and students were paid "school dollars" according to individual work performance to modify behavior and to introduce banking concepts. Discussions supplemented minivocational experiences. Favorable response was indicated by marked reduction in program absenteeism, as well as student, teacher, and parent evaluations. Four of the 5 vocational teachers maintained that MRs (in limited numbers) could be integrated into regular classes.

Department of Special Education
Baptist College
Charleston, South Carolina

652 **PORTEUS, JAMES H.; & HULLINGER, JAMES L.** *A Survey of the Severely Disabled in Iowa: Client and Counselor Perception of Vocational Deterrents and Rehabilitation Needs*. Des Moines, Iowa: Easter Seal Society for Crippled Children and Adults of Iowa, 1975. 99 pages. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $4.43, plus postage. Order No. ED111985.

Sponsored by the Rehabilitation Service Administration of the Department of Health, Education and Welfare, this study examines information collected in a survey of 650 severely disabled Iowans as reference data for planning future state rehabilitation programs. Questions were asked on employment status, employability, services most needed to help in job readiness, and employment. Conclusions are discussed under the headings general physical condition, need for acquisition of manual skills, additional training needs, vocational evaluation needs, positive attitude, and potential for employment. An appendix contains letters to survey clientele, a sample survey questionnaire, and numbers of interviews by county.

653 Supervisor Training Manual: Project Skill. *Resources in Education (ERIC)*, 11(2):27, 1975. 30 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $0.95, plus postage. Order No. ED112065.

Concepts and methods for training mildly MR and/or emotionally disturbed workers to perform at or above the minimum acceptable level are provided for Project Skill trainers. Training for supervisors of such workers consists of 2 group sessions of approximately 3 hours. The training concept is so structured that the supervisor is constantly conditioned to apply common sense and accumulated experiences to the subject to develop a more thoughtful and reasoned approach to training employees. Teaching strategies are designed to induce the supervisors to experience the sessions in their own terms and to reach a positive conclusion.

654 Virginia Polytechnic Institute and State University. *Report and Evaluation of the Second Annual Workshop for Vocational Education Personnel Working with the Handicapped.* Sheppard, N. Alan. Blacksburg, Virginia: Division of Vocational-Technical Education, 1975. 92 pages. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $4.43, plus postage. Order No. ED112092.

Sponsored by the Office of Education and the Virginia State Department of Education, this report describes an inservice workshop for vocational education teachers of the physically, mentally, and multiply handicapped. A general introduction and summary of workshop activities includes general information, topics covered, requirements for a letter grade; summaries of 4 selected consultants presentations; pretest and posttest results and analysis; analysis of the workshop evaluation instrument; attitudes of workshop participants toward special needs students; and recommendations for future workshops. Appendixes deal with workshop news releases and information; sample learning guides for individualized learning packages; sample student evaluations of reading assignments from the workshop; descriptions of handicapped persons; solicitation letter; list of workshop participants; pretest/posttest measures; and workshop evaluation scale.

655 Colorado State University. *Vocational Education for Students with Special Needs; an Administrator's Handbook.* Altfest, Myra, & Hartley, Nancy. Fort Collins, Colorado, 1975. 56 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $3.32, plus postage. Order No. ED 112091.

Seven sections, each dealing with an aspect of vocational education for students with special needs, comprise the body of this handbook; the remainder consists of appendixes providing sample referral sheets, student data sheets and needs profiles, and instructions for the use of supplemental services. Individual sections deal with identifying handicapped and disadvantaged students; the needs of such students; developing services, personnel facilities and equipment, and programs to meet the student's needs; a systems chart; community agencies and the administrator's role in coordinating their resources; individual prescriptive education; and program evaluation.

656 KERN, BONNIE. *Career Education for the Handicapped: Focus: Rural and Remote.* Everett, Washington: Washington State Intermediate School District 109, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $5.70, plus postage. Order No. ED112541.

Procedures for organizing and implementing career education programs for handicapped students in rural or remote areas are described. Among steps for developing career education programs suggested are identifying key personnel, establishing a community advisory committee, assessing student and faculty needs, selecting goals, and providing supportive services. Aspects of program management and types of program evaluation are discussed, and lists of materials and resources for career education programs are appended.

657 Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey.* (Disability and Health Economics Research.) Dittrich, Andrew. New Brunswick, New Jersey, 1975, 115 pp. $5.00.

The population in New Jersey eligible for adult work activity programs is estimated, and the present status of these services is summarized. MR, cerebral palsy, and epilepsy populations are considered. Work activity performed is assessed on the basis of IQ, adaptive behavior scores, and work performance evaluation and is compared for community-based and institutionalized populations. Three Appendixes provide data on the estimated needs and present service levels of the adult activity target populations, the MR population by county, chronological ages and IQ in 1970, and the total 1970 county population, age 21 years and older.

CONTENTS: Introduction and General Background; Estimating the Number of Clients; The Derivation of Work Activity Participation Rates for the General Population; Estimated Target Populations for Work Activity Centers: New Jersey Counties; Present Services Delivered to Adult Population: Sheltered Work, Work Activity, Adult Activity; Current Services and Current Needs: Policy Recommendations and Conclusions.

658 **DITTRICH, ANDREW.** Current services and current needs; policy recommendations and conclusions. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey*. New Brunswick, New Jersey, 1975, Chapter 6, pp. 85-101.

On the basis of estimates of work activity facilities in New Jersey oriented towards the developmentally disabled population and the number of clients in them, it appears that, in the state as a whole, possibly 12.4 percent of the target population is being served. Such a statistic is comforting in its implication that any facility could be located anywhere and not lack for clients. However, no analysis has been made of the demand aspect, and if work activity centers are constrained by being required to produce products at a competitive price, placement will be less attractive for the population under consideration. Moreover, transportation costs may not make it worthwhile for clients to attend work activity centers in particular locations. If a center already exists, it may be wise to minimize overhead and capital costs and to concentrate on expansion. In the southern counties, consideration might be given to mobile facilities. Prevalence estimates should be refined and supplemented. The benefits and costs of cultural normalization as a goal for the developmentally disabled population, through work participation, must continue to be studied.

Bureau of Economic Research
Rutgers University
New Brunswick, New Jersey 08903

659 **DITTRICH, ANDREW.** Present services delivered in New Jersey to adult population: sheltered work, work activity, adult activity. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey*. New Brunswick, New Jersey, 1975, Chapter 5, pp. 65-83.

The present statewide service delivery system to the adult developmentally disabled population of New Jersey, in the areas of work and work activity, was examined through a telephone survey to more than 200 learning, rehabilitation, care, and therapy facilities. Information was gathered on the concept of their service, the relevant population served, the nature of service programs, the place of residence of the population served, and the mode of providing transportation. The waiting time for placement in the facility and the schedule of operation of the facility were also determined. The largest number of facilities was in the category of combined sheltered work-work activity. The findings suggest that planning for expanded work activity programs might focus initially on the areas of combined adult activity and work activity facilities.

Bureau of Economic Research
Rutgers University
New Brunswick, New Jersey 08903

660 **DITTRICH, ANDREW.** Estimated target populations for work activity centers: New Jersey counties. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey*. New Brunswick, New Jersey, 1975, Chapter 4, pp. 59-63.

The establishment of work activity participation rates permits the estimation of the target population of adults eligible for work activity

programs in the counties of New Jersey. In the state as a whole, the estimates total 368 for PMRs, 4,530 for MRs with an IQ range of 25-49, 2,966 for MRs with an IQ range of 50-69, 4,079 as a conservative figure for eligible adult epileptics, and 2,226 for eligible cerebral palsied adults. The state total, aggregated from county subtotals, indicates an estimated target population of 14,153 adults potentially eligible for work activity programs in New Jersey.

Bureau of Economic Research
Rutgers University
New Brunswick, New Jersey 08903

661 **DITTRICH, ANDREW.** The derivation of work activity participation rates for the general population. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey.* New Brunswick, New Jersey, 1975, Chapter 3, pp. 31-57.

On the basis of statistical surveys of institutionalized developmentally disabled populations and a comparison study with a noninstitutionalized impaired population group, calculations have been derived for MRs, cerebral palsied persons, and epileptics that have implications for the successful participation of these groups in directed work activity in New Jersey programs. First, the resident male population of the New Lisbon State Colony was tested with IQ measurements and adaptive behavior instruments, and a rating system designed to measure ability in work activity was employed. Of the residents tested, 10.3 percent showed independent work ability, and 22.2 percent moderate work ability with direction; 43 percent were judged unsuitable for work activity participation. As IQ ranges diminished, progressively fewer Ss were placed in the upper adaptive behavior categories, and fewer qualified, by virtue of work performance scores, for work activity programs. When work performance scores of institutionalized Ss were compared with those of noninstitutionalized impaired individuals, more noninstitutionalized Ss (71 percent) qualified for work than did institutionalized Ss. However, the need for adjustment of some figures to accommodate transitional groups was recognized.

Bureau of Economic Research
Rutgers University
New Brunswick, New Jersey 08903

662 **DITTRICH, ANDREW.** Estimating the number of clients. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey.* New Brunswick, New Jersey, 1975, Chapter 2, pp. 7-29.

Estimates can be made of the New Jersey impaired population eligible for adult work activity programs by presenting county by county totals of MR, cerebral palsied, and epileptic persons. The 1970 Census provides the base for population figures for individuals 21 years of age and older. These estimates will provide a potential target population for work activity programs. While the potential target group represents the maximum estimated response to the introduction of work activity programs in adult activity centers, in all probability the introduction of a work activity program would not elicit this response. With the use of prevalence rates (the number of cases per 1,000 population at a given point in time) of 3 percent for MRs, 0.35 percent for cerebral palsied persons, and a 0.5-2 percent prevalence range for epileptics, individuals who would qualify for and profit from such activity programs are estimated.

Bureau of Economic Research
Rutgers University
New Brunswick, New Jersey 08903

663 **DITTRICH, ANDREW.** Introduction and general background. In: Rutgers University. Bureau of Economic Research. *Work Activity and the Developmentally Disabled: Estimated Needs and Present Services in New Jersey.* New Brunswick, New Jersey, 1975, Chapter 1, pp. 1-5.

The community has created a continuum of opportunities for the handicapped which includes the sheltered workshop and the activity center. On this basis, a target population may be identified, consisting of those who are serviced and fully accommodated as to training and potential by the adult activity centers and the clients of sheltered workshops who meet their screening requirements and are eligible for services. Work, the usual adult activity in modern society, has value for the developmentally disabled. If impaired adults are encouraged to engage in productive and remunerative work, insofar as their behavioral potential allows, the goal of normalization may be achieved.

664 Pennsylvania State Department of Education, Harrisburg. (Bureau of Vocational, Technical, and Continuing Education.) A task analysis approach to prevocational and vocational training for the handicapped. Pittsburgh, Pa.: Duquesne University School of Education, 1975. 135 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $6.97, plus postage. Order No. ED 114621.

Written by 18 graduate students, this handbook for special education personnel is the product of work with physically and mentally handicapped adults at workshops operated by the Pennsylvania Association for Retarded Citizens and the Easter Seal Society. Chapters deal with steps from contract procurement to work completion for a sheltered workshop; problems in occupational placement and ways to overcome them; criteria and methods for evaluating occupational and community living skills; task analyses, educational and skills prerequisites, and description, of 10 job experiences by workshop participants; and 4 additional jobs and the tasks they require. There is a brief list of information sources.

665 **FRAENKEL, WILLIAM A.** *Preparing for Work: A Guide for Special Class Teachers, School Guidance Counselors, Work-Study Specialists, Families of Mentally Retarded Young People, Mentally Retarded Young People Themselves.* Washington, D.C.: President's Committee on Employment of the Handicapped, 1975, 17 pp. Free upon request.

Four different groups can facilitate the search for a job by MR young men and women. The individual and his family, the special class teacher, the school guidance counselor, and the work-study specialist all can increase the chances for success in obtaining employment. While daily contact should be maintained between all 4 groups, each plays a distinct part. Specifically, families and friends can rate the MR individual on the beginning skills and abilities that will enhance his vocational chances later on; the special class teacher can prepare his students accordingly after filling out an academic achievement checklist; the guidance counselor can determine where his activities are needed most by scoring pupils on an interpersonal relationships checklist; and the work-study specialist can best coordinate prospective employees and jobs by rating pupils on a prevocational work adjustment opportunities checklist.

Department of Mental Health
Boston, Massachusetts

666 **VAIL, MORGAN; & TOWNSEND, JOSEPH L.** *Services to the Blind: A Community Concern.* A Report from Prime Study Group III of the Institute on Rehabilitation Services. Sacramento, California: State Department of Rehabilitation, 1975. Available from National Technical Information Service, Springfield, Virginia 22161. Paper copy $4.75; microfilm copy $2.25. Order No. PB-243 268/0GA.

In cooperation with California State University, Fresno, this project investigated concerns, issues, and practices related to services to the blind. Areas investigated were employment and placement, relationships between public and private agencies, manpower needs, population identification, the underserved population, and administrative concerns. Appendices contain a bibliography classified according to the categories aged blind, deaf blind, MR blind, and multiply impaired blind.

667 **EL KHOLY, HASSAN; & EL HOMMOSSANY, SALAH EL DINE.** Investigation of the vocational rehabilitation potential of the mentally retarded in relation to the city of Cairo and by reference to Egypt, 1966-72. Cairo, Egypt: Ministry of Social Affairs, General Administration for Social Rehabilitation, 1975. Available from National Technical Information Service, Springfield, Virginia 22161. Paper Copy $7.50; microfilm $2.25. Order No. PB-243 237/5GA.

The final report of a 6 year project (1966-1972) with 4 main objectives (to survey Cairo's 12 to 25 year olds; to develop training services; to evaluate the young MRs' abilities; and to increase internal resources for providing jobs) is presented. The MR were evaluated by means of verbal and nonverbal intelligence tests. Rehabilitation programs to meet vocational needs and needs for human development are described.

668 **ROSENBERG, HOWARD.** Job satisfaction and social interaction of mildly retarded males in uni- and multi-disability workshops. *Dissertation Abstracts International*, 36(1):223A, 1975. 257 pages. Order No. 75-13,907.

Social interaction was studied among mildly MR workers, MR and other handicapped workers, and MR and nonhandicapped staff, and an attempt was made to determine the mildly MRs' level of job satisfaction within the multidisability and unidisability workshops. In the multidisability workshops, interaction with other handicapped trainees exceeded the interaction with staff by approximately 2:1. The unidisability group had 5 times greater a number of interactions than the multidisability group with staff. Pearson product moment correlations did not suggest a significant relationship between overall job satisfaction and social interaction with either MR, other handicapped, or staff. A number of conclusions are drawn from the results, and it is recommended that a selective placement policy be adopted for workshops; job satisfaction and dissatisfaction be engineered; and secondary school programs be coordinated more closely with workshop programs.

Columbia University
New York, New York

669 **ROSINSKY, ROBERT W.** Evaluating the severely disabled: the controlled Environmental Laboratory Evaluation. *Rehabilitation Literature*, 36(10):302-205, 320, 1975.

The Controlled Environmental Laboratory Evaluation (CELE) is the core of a package developed by the Milwaukee area Goodwill Industries to evaluate severely disabled clients for placement within a sheltered workshop. Cognitive, psychomotor, and affective scales are administered in a special laboratory apart from the physical plant to minimize stimuli which may distract clients. Initial results indicated that the CELE could discriminate among clients by job areas. Severely disabled clients from a preentry program generally performed less adequately than did clients in the Work Activities Center. Both of these groups scored lower than a group of younger clients who had the benefit of educational experience and/or home settings. Approximately 90 percent of the clients evaluated through the CELE are currently working in areas above the work expectations of referral personnel. Commercially available instruments are part of the total evaluation package, which can be developed at little cost and in limited space. (13 refs.)

Goodwill Industries
Milwaukee, Wisconsin

670 **BERNSTEIN, MERTON C.** The right to an adequate income and employment. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 10, pp. 271-295; reaction comment (Milton W. Ferris; David Chambers), pp. 295-304.

In the light of a lack of any general policy of compensation, and a lack of a general policy governing compensation to the disabled in particular, Americans should regard the notion of the "the common unearned heritage" as the concept from which we can recognize that each member of society is entitled, by right, to a share--a decent standard of living, even if he is so impaired as to be economically unproductive. This principle should aid individuals whose earning power is reduced through degenerative disease, accidental injury (whether or not job-related), and developmental impairment. In view of the lack of conceptual purity in the Fair Labor Standards Act as written and applied, the wages paid by employers might properly be geared to productivity--if reduced productivity of the handicapped worker could actually be demonstrated--but the common unearned heritage or a straight social subsidy should be used to raise the total wages of the worker to a level required for a decent standard of living. Adequate compensation constitutes part of the effort toward enabling MRs to use their full capabilities, and this approach probably would prove cheaper than most current institutional arrangements. Ferris describes various kinds of employment discrimination and recommends increased involvement of attorneys in achieving better working conditions and income and employment rights. Chambers explores the reasons why courts are reluctant to develop a constitutional right to adequate income and cites nonconstitutional routes already open to MR citizen. (81 refs.)

Ohio State University
Columbus, Ohio

671 **LEVY, SIDNEY M.** The development of work skill training procedures for the assembly of printed circuit boards by the severly handicapped. *Resources in Education (ERIC)*, 11(3):67, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $1.58, plus postage. Order No. ED113883.

A review of research studies in which SMR adults have been required to perform complex industrial tasks indicates a high rate of success. The results demonstrate that MR workers can be trained to insert electronic components into a printed or etched circuit board. The ability of 2 MR adults to assemble a large number of parts using a match-to-sample training procedure is being investigated in a pilot study.

672 **BROLIN, DONN E.** Program evaluation. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 14, pp. 247-256.

Program evaluation, conducted to provide data useful in assessing cost benefits, goal attainment, and other criteria, can be based upon standardized tests, performance measures, judgmental responses, questionnaires and interviews, observational measures, unobtrusive measures, nonreactive observations, and others. Inputs, processes, and outcomes provide a framework for identifying needed instrumentation. Subjective measurement methods, consultation, feedback, debriefing sessions, and participant observation seem to merit wider utilization in program assessment designs, since program evaluations do not always lend themselves to rigorously quantitative approaches. Program evaluation must consider the needs of the community and of individual clients, specify objectives to meet these needs, determine how they can be met, and measure the attainment of each objective. Formative evaluation is as crucial as summative evaluation to conduct in vocational programs.

University of Missouri
Columbia, Missouri

673 **BROLIN, DONN E.** A postsecondary rehabilitation program model. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 13, pp. 213-246.

Rehabilitation workshops vary greatly in their philosophy and effectiveness in dealing with persons who seek their services. Successful programming requires the expertise and interdisciplinary cooperation of a group of professional workers. A facility that meets the recommended guidelines is one which probably offers a normalization type of environment where individuals are able to acquire the necessary life competencies. Physically, workshops should stress the safety factor and offer facilities for social events and other meetings. The primary goals of rehabilitation workshops are to identify the main vocational abilities, interests, and needs of clients; to help prepare them for appropriate employment; and to help them seek, secure, and maintain employment that best fulfills their abilities, interests, and needs. However, when community resources are lacking in preparing certain individuals to manage daily living needs and to develop sufficient personal-social skills, rehabilitation workshops must assume an expanded role. A proposed systems model for rehabilitation workshops illustrates the procedure considered necessary to conduct meaningful and comprehensive vocational services for MRs and other individuals.

University of Missouri
Columbia, Missouri

674 **BROLIN, DONN E.** A secondary EMR program model. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 12, pp. 190-212.

Secondary educational programs should redirect their offerings toward a competency-based career education curriculum to better ensure that EMR students acquire satisfactory economic, social, and personal fulfillment. Previous research, expert opinion, and past experiences have shown that 22 competencies falling under the 3 curricular areas of daily living skills, personal-social skills, and occupational guidance and preparation are critical for these students to acquire before leaving the educational program. The components of these

competencies and their infusion into the curriculum are being developed at the University of Missouri by members of Project PRICE (Programming Retarded in Career Education), along with 6 cooperating school districts. Where possible, an integrated approach is recommended so that EMR students gain as much regular education and normalization as possible. Occupational guidance should include various instructional materials and counseling techniques, and occupational preparation should involve vocational tests, work and job samples, and job experiences; the family should be counseled and encouraged to participate maximally in the student's program. Students should be certified for each competency they acquire, and their schooling should be extended and/or appropriate postschool programs be ensured before they leave the educational system.

University of Missouri
Columbia, Missouri

675 **BROLIN, DONN E.** Job placement and follow-up. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 11, pp. 168-187.

Job placement and follow-up of MRs may be the most important components of the vocational preparation process. Placement and follow-up should be integrated in concept, with placement not considered completed and satisfactory until after the client has received 2 years of follow-along services after beginning his job. Job placement of MRs is a complex process that must consider types of jobs within the capabilities of MRs, critical social and psychological factors affecting vocational potentials and opportunities, training in job-seeking skills, and various placement techniques and approaches; the Minnesota Theory of Work Adjustment offers an excellent method of assessing job placement effectiveness and of pinpointing reasons for failure along the vocational preparation process. Follow-up activities constitute an important function in assuring the client of successful adjustment to his job and to community living. It is important that the positive outcomes of counseling, evaluation, training, and placement efforts not be negated through neglect of the problems encountered by MRs in everyday living activities.

University of Missouri
Columbia, Missouri

676 **BROLIN, DONN E.** Vocational training. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 10, pp. 151-167.

Vocational training of MR individuals after vocational evaluation is probably given most appropriately in an actual work setting. Thus, while vocational training takes place also in schools, institutions, and rehabilitation and sheltered workshops, business and industrial personnel can assist greatly in the vocational preparation of MRs. Work and job samples, instructional packages, and job stations could be utilized to give MRs the basic vocational skills needed to enhance their chances of being successful after placement for training in the actual work setting. While many educational, institutional, and rehabilitation personnel believe their responsibilities lie in training their students or clients for the kinds of skills that can be generalized to many job situations, this view may not be valid for MRs who are going to be trained for more complex work. Learning a salable skill gives MRs a tremendous psychological lift as well as a competency to sell. Vocational training of MRs is highly dependent upon vocational evaluation results that must indicate specific strengths and weaknesses so that an appropriate training program can be designed.

University of Missouri
Columbia, Missouri

677 **BROLIN, DONN E.** Vocational evaluation: job tryouts. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 9, pp. 144-150.

Within the setting of job tryout, a work evaluator can assess how his client will respond and interact with regular employees and working demands. Moreover, he can check his previous evaluations and opinions of the individual's potentials with actual supervisors and employees of that establishment. In addition to benefitting the work evaluator, job tryouts enable the client to see himself more adequately as a person and productive worker in regard to his capabilities and limitations. An experienced counselor can minimize the disadvantages of using the job site

approach by orienting employers carefully, selecting job sites wisely, and cooperating with the employer in devising a good climate for evaluation.

University of Missouri
Columbia, Missouri

678 **BROLIN, DONN E.** Vocational evaluation: work adjustment. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 8, pp. 125-143.

Work adjustment, a third component of the vocational evaluation process, is often necessary before some clinical assessments and work evaluation procedures can be conducted adequately for MRs. Some of the critical vocational behaviors that work adjustment programs concentrate on are work motivation, mobility, maturity, organization, self-concept, productivity, learning abilities, emotional stability, getting along with other people, and other social skills, sensory skills, and proper work habits and attitudes. Work adjustment experiences include not only changing inappropriate behaviors but also providing individuals with new experiences, information, and physical development; as such, they can take place at or near the onset of the vocational evaluation process, if needed, while more definitive work adjustment for specific behavioral change can occur later. Within the work adjustment program, work is the primary treatment technique, but other techniques are important complements. The major adjustment methods are counseling, individual and classroom instruction (didactic), situational work, behavior modification, and precision teaching.

University of Missouri
Columbia, Missouri

679 **BROLIN, DONN E.** Vocational evaluation: work evaluation. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 7, pp. 97-124.

Work evaluation, a relatively new systematic process within the total vocational evaluation and preparation program, is unique in its emphasis upon work, simulated or real. Because of disenchantment with psychological tests and other relatively nonpredictive clinical measures, work evaluation has become an important component in attempts to evaluate vocational abilities and potentials with greater accuracy. Its 4 major components are intake and other counseling interviews, standardized vocational tests, work/job samples, and situational assessment. Several noteworthy systems or batteries of vocational or work evaluation have been developed in recent years, among them the TOWER (Testing, Orientation, and Work Evaluation in Rehabilitation) system, the JEVS (Jewish and Employment Vocational Service) battery, the Singer Vocational Evaluation System, and the Wide-Range Employment Sample Test. Work evaluation can be conducted in laboratory settings, classrooms, rehabilitation workshops, institutions, and in community work places, and it holds great promise for offering a systematic and highly individualized vocational evaluation approach.

University of Missouri
Columbia, Missouri

680 **BROLIN, DONN E.** Vocational evaluation: clinical assessment. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 6, pp. 80-96.

Clinical assessment, one of the major components of vocational evaluation for MR individuals, should address itself to the significance of medical findings for vocational planning, the importance of the family in the client's rehabilitation, the need for educational assessments to explain how the MR can best be instructed vocationally, and the expanded role of the psychologist in delineating treatment and training suggestions for the individual more explicitly. The Vineland Social Maturity Scale, the American Association of Mental Deficiency's Adaptive Behavior Scale, the Wechsler Adult Intelligence Scale, and the Bender Visual Motor Gestalt Test are appropriate clinical assessment measures. A comprehensive clinical assessment is a necessary prerequisite for designing meaningful and appropriate vocational preparation plans. Many of the clinical assessment evaluations should or can be done prior to the other 3 vocational evaluation components (work evaluation, work adjustment, job tryouts). However, some evaluations, such as psychological testing, are

accomplished better after the individual has adjusted to the vocational evaluation facility and more specific questions and concerns become known.

University of Missouri
Columbia, Missouri

681 **BROLIN, DONN E.** Vocational counseling. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 5, pp. 61-79.

The vocational counselor occupies a highly significant place in the vocational preparation process of MRs and should, when possible, assume responsibility throughout the vocational program and until the MR individual is placed satisfactorily into employment. Within school settings, if the school counselor is unable to assume this responsibility for MR students as well as for others needing their assistance, special education teachers will have to step in despite their lack of formal preparation for vocational counseling and the resulting neglect of other areas requiring their attention. Within institutional and rehabilitation settings, a single vocational counselor probably will provide most vocational counseling. If the counselor is unable to provide the needed job placement and/or follow-up services, this responsibility now falls legally to the state vocational rehabilitation agency counselor. If a second vocational counselor is needed, close interaction will ensure the successful preparation and assimilation of the client into society. While the emphasis for vocational preparation personnel should be on vocational aspects, it does not exclude both social and personal problems, because vocational success is equally dependent upon social and personal functioning.

University of Missouri
Columbia, Missouri

682 **BROLIN, DONN E.** Vocational services for the retarded. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 4, pp. 41-56.

Vocational services for MRs have been provided primarily by educational, rehabilitation, institutional, and employment systems and by one generally private nonprofit agency, rehabilitation workshops. Despite many fine programs and personnel in each area, in numerous instances MR citizens are not receiving quality services. Regular education has difficulty meeting the needs of most students, handicapped or otherwise. In the field of special education, more of an occupational orientation and skills in the social, communication, and leisure-time areas are needed. State rehabilitation agencies are hampered by vast amounts of paper work, time delays, financial deficits, and excessive numbers of cases. Rehabilitation workshops are often limited by poorly conceived and administered programs, emphasis on work at the expense of rehabilitation, inexperience in methods of dealing with handicapped persons, and poor physical plants. Rehabilitation facilities should continue to play a vital role in the vocational preparation of MRs, and their services should be in demand as they develop more sophisticated and systematic methodologies and cooperative arrangements.

University of Missouri
Columbia, Missouri

683 **BROLIN, DONN E.** Vocational adjustment of the retarded. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 3, pp. 29-40.

The total life career developmental needs of the majority of handicapped citizens in the United States, particularly MRs, are still not being met despite the indications of vocational adjustment research and expert opinion that most MRs can reach a highly satisfactory vocational level. Unemployment and underemployment are constant problems for MRs as a result of underestimations of their potentials, misconceptions and attitudes of the public and professional workers, agency conflicts, lack of creative ability by placement workers, lack of sufficiently trained professional personnel, poor personal-social skills training, and lack of sufficient services offered by agencies. Adoption of the normalization principle and career education in vocational services will offer new hope to MRs. However, career education, a total preparation for life, will require radical realignment in current services to MRs and other persons. More career-related academic instruction will be necessary, educational programs

will have to assume more responsibility for the development of MR students' potentials, and rehabilitation and other service agencies will have to develop more interdisciplinary cooperation and meaningful services resulting in client and employer satisfaction.

University of Missouri
Columbia, Missouri

684 **BROLIN, DONN E.** Development of a work personality. In: Brolin, D. E. *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, Chapter 2, pp. 18-28.

The vocational development of the MR is a process similar to that for non-MR individuals, but slower. The work personality is comprised of those unique individual abilities and needs which are highly dependent upon genetic and environmental factors and their interaction. The preschool, elementary, secondary, and postsecondary school stages are significant to the development of the MR's work personality. The early years are especially important, in particular with regard to the attitudes of the family about an MR son or daughter, the experiences they provide, and the kind of reinforcements available to the MR individual in self-concept development. However, concerned vocational attempts later should not be discouraged if early circumstances have been unfavorable. In this case, the MR individual will require concentrated services for a prolonged period of time before he is able to demonstrate and achieve his level of vocational potential.

University of Missouri
Columbia, Missouri

685 **BROLIN, DONN E.** *Vocational Preparation of Retarded Citizens.* Columbus, Ohio: Charles E. Merrill, 1976, 312 pp.

The basis for preparing MR individuals for vocational adjustment and success is an approach that conceptualizes the vocational preparation process to be conducted by a counselor from start to finish and that includes several deviations from traditional practice. A competency-based orientation of students or clients and more effective utilization of their family and community resources while the individual is receiving vocational services are crucial. Equally important, the strengths, desires, and needs of each individual should be capitalized upon in vocational development and work adjustment. The vocational preparation of MR citizens is a complex process that never really ends. The positive outcomes derived from counseling, evaluation, training, and placement efforts must not be negated by neglecting the problems that MRs encounter in ordinary community living activities, and a concentrated collaborative effort on the part of many community agencies will be required to help the MR to live productive lives. (305 refs.)

CONTENTS: The Nature of MR; Development of a Work Personality; Vocational Adjustment of the Retarded; Vocational Services for the Retarded; Vocational Counseling; Vocational Evaluation: Clinical Assessment; Vocational Evaluation: Work Evaluation; Vocational Evaluation: Work Adjustment; Vocational Evaluation: Job Tryouts; Vocational Training; Job Placement and Follow-up; A Secondary EMR Program Model; A Postsecondary Rehabilitation Program Model; Program Evaluation.

686 **REINBETANZ, KAREN RHODA.** Mathematics and reading for the adult mentally retarded in a sheltered workshop. *Dissertation Abstracts International,* 36(3):1439A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-12,916.

The effect of a specially structured program on the improvement of reading and arithmetic skills was studied with 65 MR Ss and controls (35 males and 30 females). Study participants were moderately and mildly MR employees of a sheltered workshop and rehabilitation center. The entire sample population was screened with the American Association of Mental Deficiency's Adaptive Behavior Scales, with individuals who received low scores on the reading and arithmetic areas being assigned to the S pool. Ss and controls were pretested with the Peabody Individual Achievement Test and were assigned to small groups which received the treatment or nontreatment. The results showed that both the math and reading experimental groups demonstrated highly significant gains over a 16-week intervention period. This finding lends empirical support to the humanistic belief in the ability of adult MRs to benefit from basic education.

687 **ADIMA, EMMANUEL EFESEKE.** A study of on the job characteristics of mentally retarded employees judged to be "good" and "bad" by their immediate supervisors. *Dissertation Abstracts International*, 35(12, Pt. 1):7751A-7752A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-13,173.

The San Francisco Vocational Competency Scale was used to measure on-the-job characteristics of MRs in Western Pennsylvania evaluated as "good" and "bad" by 100 immediate supervisors. The Scale clearly discriminated between MR employees who possessed good or satisfactory characteristics on the job and those who possessed bad or unsatisfactory characteristics on the job. MRs judged as bad on the job were rated low on initiating tasks, remembering instructions, following verbal instructions, reading ability, measuring things, requesting materials, specifying what is unclear, and performing previously learned tasks, among other items. The inability of MR employees to read and measure things did not affect their favorable work adjustment. However, supervisors tended to give good ratings to MR employees who performed well on most of the listed characteristics and to consider these individuals as well-adjusted employees.

University of Pittsburgh
Pittsburgh, Pennsylvania

688 National Association for Retarded Citizens. *A Guide to Establishing an Activity Center for Mentally Retarded Persons.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, 90 pp.

Guidelines on the organization of work activity centers for MR adults involve consideration of the responsibility to normalize the MR population, evaluation of particular needs and services of the target population, securing of adequate funds and technical assistance, and initiation of a strong public information and public relations campaign in order to inform the community about the facility and to help secure referrals. Relevant psychological, social, and medical information and specific vocational-related material provide the baseline assessment from which the individual program plan is developed. An effective personal-social adjustment training curriculum will reduce the individual's level of dependency and give him greater self-direction; work adjustment training will ensure improved work performance through continuous modification of goals and objectives, and vocational training programs will emphasize orderly, systematic learning experiences. A governing body and standing committees will concern themselves with budgeting, financing, insurance, technical assistance, and accountability problems. A listing of major national organizations and agencies with major emphasis on the handicapped is appended. (136 bibliog. items and refs.)

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P. O. Box 6109
Arlington, Texas 76011

689 National Association for Retarded Citizens. *Planning and Organizing a Sheltered Workshop for Mentally Retarded Persons.* Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, 79 pp.

Guidelines for establishing a work-oriented rehabilitation facility for MRs with a controlled working environment and individual vocational goals stress proper assessment of the need for a sheltered workshop, determination of specific goals, exploration of all financial resource possibilities from public and private sectors, and legal incorporation and organization. The workshop is eligible for various federal benefits and may sell it products at the federal and state levels as well as to private industry. Therefore, utilization of modern industrial engineering techniques and good building design are essential. Workshop rehabilitation services comprise individual evaluation, program planning, training, and supportive and ancillary services. Effective utilization of technical assistance resources and good public relations are vital to the sheltered workshop. Appendices include guidelines on organization and administration and a listing of national organizations and federal agencies interested in the handicapped and of technical resource organizations. (17 bibliog. items and refs.)

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690 **SHERIDAN, SUSAN JANE WARNER.** Level of moral reasoning and ego development as factors in predicted vocational success with the mentally retarded. *Dissertation Abstracts International*, 35(7):4290A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1023.

The stages of moral reasoning and ego development of a group of MRs predicted likely to succeed in employment were compared with the stages of a group of MRs predicted unlikely to succeed. Eight Vocational Adjustment Coordinators from 4 Houston (Texas) area school districts identified the 25 of their EMR clients they predicted to be the most likely and the least likely to succeed in employment, respectively. Kohlberg's Test of Moral Reasoning and Loevinger's Washington University (St. Louis, Missouri) Sentence Completion Test of Ego Development were administered to all Ss. The group predicted likely to succeed scored higher on the moral reasoning and ego development measures than the group predicted unlikely to succeed. The groups did not show significant differences in other variables such as chronological age, ethnic group, IQ, or sex.

University of Houston
Houston, Texas

691 **MOCK, WELLINGTON LEWIS.** A comparison of graduates of work-study and traditional programs designed for those formerly labeled educable mentally retarded (EMR). *Dissertation Abstracts International*, 35(7):4288A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-1075.

Randomly selected groups of 57 formerly labeled EMR graduates of the Fullerton Union High School District's innovative work-study program (Project Worker) and 60 graduates of the Anaheim Union High School District's traditional special education classes for EMRs (both located in Orange County, California) were compared with respect to later vocational and social adjustment. Data were collected using background information generated from district records and specific information generated by use of a specially prepared questionnaire. At the time of the study, 68 percent of the work-study group and 38 percent of the traditional group were employed, at mean gross hourly wages of $2.55 and $2.13, respectively. Nine of the work-study group and 4 of the traditional group had worked continuously since graduation. There were many more jobs in the moderately skilled and skilled categories held by work-study graduates. Most Ss in both groups lived at home. Postschool vocational adjustment of EMRs was enhanced by participation in the work-study program. Overall postschool social adjustment was the same for both groups.

University of Southern California
Los Angeles, California

692 **ANDERSON, FRANK BURLEW.** An analysis of relationships between variables in the vocational choice process of educable mentally retarded work study students. *Dissertation Abstracts International*, 35(7):4279A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 74-21,866.

The efficacy of applying basic principles of vocational counseling theory to the actual career decision processes of 103 male and female EMR high school students enrolled in a work study program was measured. Thirty-eight regular high school students served as the comparison group. A significant difference was obtained in the comparison of mean self-concept scores between EMR and regular students (at $> .05$), but additional analysis of variance procedures failed to show significant differences across EMR student groups when categorized on variables of grade, sex, and combined effects. The results of this study demonstrated that traditional theories of vocational counseling which described the existence of a significant relationship between self-concept and vocational congruence were not validated in the decision processes of the participating EMR students. Self-concept appeared to be independent of the distinctive patterns of vocational congruence used in the study.

University of Iowa
Iowa City, Iowa

693 **CHANG, PI-NIAN.** Some psychosocial correlates of occupational performance among trainable mentally retarded trainees. *Dissertation Abstracts International*, 35(7):4241A-4242A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-192.

The effect of some psychosocial factors important in the counseling, teaching, and evaluation of TMR trainees by vocational habilitation workers was studied on 46 Ss with an IQ score between 30 and 50 selected from a sheltered workshop group. The Porteus Maze test was administered individually, and the American Association of Mental Deficiency's Adaptive Behavior Scale was completed jointly by the workshop case manager, parents or house mother, and the investigator. Criterion measures were adjusted statistically to account for differences in length of training time of Ss. Significant correlations were found between the adjusted production rate variable and (1) IQ score, (2) Porteus Maze test score, (3) total adaptive behavior score, and (4) the following adaptive behavior domain scores: independent functioning, physical development, economic activity, language development, number and time concept, occupation-domestic, occupation-general, self-direction, and socialization. The results of this study supported the views that general adaptive behavior in daily living provides valuable information on the occupational potential of MR trainees, that intelligence is a highly discriminative factor within a singular ability grouping, and that "vocational success" needs to be defined in operational terms.

University of Minnesota
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TREATMENT AND TRAINING ASPECTS — Therapy

694 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Management of the retarded child. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 4, pp. 47-52.

Managing the behavior of an MR child constitutes an important and often necessary procedure before other training can begin. An MR child may engage in inappropriate behaviors because he is not aware of what is expected of him. For some children, inappropriate behavior may bring attention, even if it is in the form of punishment. To deal with these children, behaviors that interfere with learning must be identified, and a list of priorities and objectives for meeting behavior goals should be established. In cases when a child is engaging in destructive or abusive behavior that may harm himself or others, a time-out procedure, in which the child is taken away from a reinforcing atmosphere and is put by himself, may be effective. In general, distractions in the classroom or training room should be minimized, and directions should be given to the child in short, simple sentences. Shaping is a method of rewarding each small attempt to complete the first step in a task to be learned; this technique is used effectively with simple behaviors, such as being quiet, while chaining is used for a series of behaviors that are a part of complex behavior, such as dressing. No matter which tangible reward is employed for reinforcement, it must be withdrawn gradually as the correct behavior is learned.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

695 **HARRYMAN, SUSAN E.** Physical therapy. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 9, pp. 167-189.

The physical therapist is a valuable specialist in his own right and an integral part of the interdisciplinary management of the developmentally disabled child. The major concerns of the physical therapist are the assessment of development in

posture and locomotion, determination of the need for therapy, and implementation of appropriate therapeutic approaches. In certain cases, the physical therapist may be assisted effectively by behavior modification techniques. In developmentally disabled children who are prone to orthopedic problems, a close working relationship with the orthopedist is crucial. To provide a successful treatment program, the physical therapist must begin treatment at an early age, provide an individualized program to improve the function of each child and/or his family, involve the family in home management, continually reevaluate the potential for further development, and correlate treatment with programs of other treating disciplines. The physical therapist must also realize the limitations of potential levels of development and terminate physical therapy programs when significant benefits can no longer be obtained.

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696 **FORREST, ALISTAIR.** Fact and fiction in the care of the mentally handicapped. *British Journal of Psychiatry*, 127:190, 1975. (Letter)

In regard to previous correspondence on provision of care to the MR in Great Britain, the concept of a single, centrally funded service for the MR is recommended. The current deterioration in services to the MR results from government policies which separate social work from health and phase out hospitals before adequate facilities exist in the community. A single service, outside the National Health Service and the Social Work Services, might increase nursing and medical staff recruitment and offer prospects for improved services to patients and parents in the next few years. (2 refs.)

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697 **SHAPIRO, ALEXANDER.** Fact and fiction in the care of the mentally handicapped. *British Journal of Psychiatry*, 126:487-488, 1975. (Letter)

In response to correspondence regarding a British White Paper on services to the MR, the primacy of medicine in the provision of treatment and care is stressed. In addition to involvement with organic causes of MR physicians are concerned about social ramifications of MR. Their role in no way invalidates reliance on parents, teachers, and social workers. Inadequacies in staffing make the pursuit of prevention (through intensive research) and the rational deployment of available resources imperative. Current official policy regarding the MR should be judged against deterioration of care, since the service (previously integrated under medical guidance) has been divided into medical, social, and educational units. Shortcomings of service under medical guidance are attributed to lack of money, facilities, and official discouragement.

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Harper Lane
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Herts, England

698 **KUSHLICK, ALBERT; & BLUNDEN, ROGER.** Fact and fiction in the care of the mentally handicapped. *British Journal of Psychiatry*, 126:487, 1975. (Letter).

A previously published call for the unidisciplinary management and coordination of services for the MR by psychiatrists is critically discussed. The recommendation was made in conjunction with a plea for reversal of policies set forth in a British White Paper on services to the MR. Attention is called to gross staff inadequacies, the small proportion of MRs with identifiable brain pathology, and the maintenance of the bulk of daily life patterns by relatives, nurses, social workers, and remedial therapists. Delivery of a comprehensive, integrated service will be possible only if individual goals are agreed upon among all persons involved with each client. Teaching and organizational skills are likely to be important features of such teamwork. (3 refs.)

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699 **SPENCER, D. A.** Fact and fiction in the care of the mentally handicapped. *British Journal of Psychiatry*, 127:189-190, 1975. (Letter).

Regarding previous correspondence on provision of services to the MR in England, recommendations of the National Society for Mentally Handicapped Children are reported. After discussion at informal meetings, the largely nonmedical group concluded that only a physician had the depth and breadth of experience to coordinate a multidisciplinary team serving the MR. As a result a consultant in MR has been hired in Leeds to work with children and families on a community basis, to forge links with the pediatric assessment unit, and to emphasize a coordinating role. The future role of a consultant specializing in the psychiatry of MR will be less based in the hospital and will involve a wider commitment to the community.

Meanwood Park Hospital
Leeds, Hospital

700 **FOX, LAWRENCE A.; & O'BRIEN, ELLEN.** Dentistry. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 16, pp. 341-362.

Pediatric dentistry, a specialty concerned with the total dental needs of the child, is a critical part of the multidisciplinary team approach to developmentally disabled children. The provision of a minimally anxiety-producing experience is of prime concern in the overall management of the child in the dental setting. The approach to the child is particularly important in dealing with the developmentally handicapped; special emotional and behavioral needs must be understood and met. Particular requirements of the developmentally disabled child, excluding behavioral aspects, would involve such specialized care as treating the gingival problems associated with Dilantin and the restorative skills required to repair the various forms of tooth structural abnormalities. Dentistry for the handicapped has gone through many changes since its infancy, when the prime modality of adjunctive therapy was general anesthesia. Today, behavior modification and sedation provide less dangerous alternatives. Prevention of dental caries and periodontal disease is the thrust of any dental practice and is especially significant in dealing with developmentally disabled children. (1 ref.)

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701 **GORGA, DELIA I.** Occupational therapy. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 10, pp. 191-205.

The overall aim of the occupational therapist in dealing with developmentally handicapped children is to assess their present level of independent functioning in motor, perceptual, and personal-social areas and to plan and implement necessary interventions for improvement. During the infancy stage, the occupational therapist is engaged in fostering independence through sensorimotor skill development and enhancement of personal-social abilities. During the preschool stage, skill development is attempted primarily in the areas of feeding, grooming, dressing, and dexterity, and in rudimentary perceptual-motor areas. In the early school stages, in preparation for formal academic education, the occupational therapist focuses on the child's ability to organize experiences; in this stage, a multisensory approach is useful in giving the child auditory, visual tactile, kinesthetic, and vestibular cues to facilitate learning. During the school and prevocation stages, the occupational therapist is concerned with the specific areas of social development, self-help skills, perceptual-motor abilities, and prevocational activities. (15 refs.)

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702 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Activities of daily living. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 7, p. 87-156.

Tasks caried out on a routine basis by MR children are taught by the behavior modification or behavior management approach. The tasks to be taught should be defined objectively and specifically. They should represent extensions of skills already mastered by the child. Moreover, they should be selected carefully and individually and should be broken into single teaching units. The collection of baseline information is fundamental to the design of a training program in order to determine the effectiveness of training. Tasks selected for training should be practiced at a time when they most likely occur as a part of the child's daily routine. If the child is to be trained in a day care setting with daily contact with the home, the parents should be involved. Trainer consistency is crucial. In dressing and undressing behaviors, including closures, feeding, toothbrushing, and toileting, a series of single events should be built into steps that lead to mastery of a complex behavior.

Bureau of Child Research
Kansas University Affiliated Facility
Lawrence, Kansas

703 **SNYDER, LEE K.; LOVITT, THOMAS C.; & SMITH, JAMES O.** Language training for the severely retarded: five years of behavior analysis research. *Exceptional Children*, 42(1):7-15, 1975.

A review of 23 behavioral analysis studies focusing on language training for SMRs clearly indicates the possibility of modifying the language behavior of SMRs through the use of operant techniques. An analysis of the studies shows that 17 dealt exclusively with expressive language, all involved the use of tangible reinforcers, and most used institutionalized Ss over 8 years old. Only a few of the studies reported data on either maintenance over time or generalization of learned responses to new settings. Further research needs include an increased emphasis on antecendent conditions, evaluation of a broad range of reinforcement contingencies, specific attention to variables which affect maintenance and generalization, and studies involving an extended range of ages and settings. (30 refs.)

Department of Special Education
George Peabody College
Nashville, Tennessee

704 **SCHRAG, PETER; & DIVOKY, DIANE.** Therapy, punishment, control. In: Schrag, P.; & Divoky, D. *The Myth of the Hyperactive Child and Other Means of Child Control.* New York, New York: Pantheon, 1975, Chapter 7, pp. 208-229.

The mandate for increased intervention with children given to social institutions in the 1960's shows every sign of continuing today. By early 1975, American children had become the target of drugs, behavior modification, security guards, uniformed police, and undercover agents in the schools, electronic surveillance in corridors and classrooms, student informers, forced participation in predelinquency counseling and "treatment" projects, forced "diagnosis" and "treatment" of learning disabilities and emotional problems, mass screening in the case of preschoolers, as well as the traditional methods of intimidation, suspension, and corporal punishment. Amost all systematic attempts to control behavior presume inequality and prior control. The new modes of control represent the replacement of overt authority by technological, medical, or psychological manipulation, and the use of scientific language to mask the imposition of social and institutional norms. In actual practice, all behavior modification is training, not education. The sort of "learning behavior" it can reward validates the controls and schedules of the teacher or psychologist, but it does not honor the mind and spirit of the subject.

705 **HSIA, YUJEN EDWARD.** Treatment in genetic diseases. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter, 11, pp. 277-305.

Effective rational therapeutic approaches to genetic diseases are directed towards the modification or prevention of the expression of genetic traits, so that an affected individual may develop optimally within his or her inherent potential, despite the possession of disadvantageous genes. Decisive curative treatment, based upon genuine understanding of disease mechanisms, is possible or foreseeable for many of the single-gene disorders. Treatment of genetic diseases involves particular attention to the external and internal environment. Donation and excision of gene products, repair and reconstruction of anatomic malformations, and manipulation of gene expres-

sion may also be feasible. Future therapeutic prospects for MR in genetic disorders are quite promising for many metabolic diseases. For the neurologic and neuropsychiatric disorders, therapeutic prospects depend upon clarification of pathogenic mechanisms. For chromosomal anomalies and other malformation syndromes associated with abnormal brain structure and function, therapeutic prospects seem to be limited to prevention by genetic counseling and antenatal diagnosis. (79 refs.)

Yale University
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New Haven, Connecticut

706 **DESNICK, ROBERT J.; KRIVIT, WILLIAM; & FIDDLER, M. B.** Enzyme therapy in genetic diseases: progress, priniciples, and prospects. In: Milunsky, A. *The Prevention of Genetic Disease and Mental Retardation.* Philadelphia, Pennsylvania: W. B. Saunders, 1975, Chapter 13, pp. 317-342.

The integration of prior experiences with recent developments and future ingenuity portends exciting prospects for the treatment of patients with enzyme deficiency diseases. Advances in enzyme technology are already enhancing the feasibility of enzyme replacement. Moreover, the rapid and anticipated progress in cellular engineering to deliver highly purified, chemically modified enzymes to target sites for maximal therapeutic effectiveness makes the future of this therapeutic modality a promising one. The requisites for effective enzyme therapy include enzyme technology and administration, *in vivo* test systems, and demonstration of biochemical and clinical effect. The development of effective strategies for the treatment of patients with genetic diseases requires human experimentation without doing any harm, a thorough understanding of the molecular pathology of the specific disorder or disease variant, and rational therapeutic design and adequate assessment. (87 refs.)

Department of Pediatrics
University of Minnesota Medical School
Minneapolis, Minnesota

707 **NORDOFF & ROBBINS.** *Music Therapy in Special Education.* London, England: Macdonald & Evans. (No date), (No price).

A guide to effective group music therapy is provided for teachers of handicapped children. The principal activities discussed are singing, working with instruments, and taking part in plays and special games that involve music. Within the discussion of each activity advice is offered on a variety of subjects, including: choosing songs; setting words to music; suggestions for playing; leading the singing group; making arrangements for resonator bells; how musical instruments can be used; working with the children during instrumental activities; conducting; dramatization through music; and staging the scenes and action. Examples of effective therapy are given, and illustrations are included of specially written songs and plays.

708 **BRUST, D.; BENNETT, R.; PAO, FLORENCE; LAMBERT, T.; & PARKER, L.** Cottage A training program. Hospital improvement program, part 1. Ohio: Orient State Institute, 1975. Available from National Technical Information Service, Springfield, Virginia 22161. Paper Copy $3.75; microfilm copy $2.25. Order No. PB-243 272/2GA.

The Cottage A Ward Behavior Modification Project at the Orient State Institute is described. The project was designed to implement behavior modification techniques on 2 wards inhabited by MR children, with emphasis on individualized self-help programs for residents; structured hours for practice of residents' social skills; lecture-discussion sessions and a practicum for trainers; a training proficiency scale to evaluate trainers; and use of comprehensive behavioral checklist to evaluate residents.

709 **COTT, ALLAN.** Treatment of learning disabilities. New York, New York: American Schizophrenia Association, 1975, 12 pp.

Manifestations of learning disabilities in children of normal or superior intelligence are described, possible physical causes are suggested, and current treatment procedures are reviewed. The advantages of orthomolecular intervention are stressed in view of increasing evidence that a child's ability to learn can be improved by large doses of certain vitamins and mineral supplements and by upgrading his general nutrition by removing "junk" foods from

the regular diet. There are many economic and practical advantages of orthomolecular treatment used alone or in conjunction with other forms of treatment. Other factors which promote learning disabilities and may be amenable to orthomolecular therapy include the mother's nutritional status in the prenatal period, complications of pregnancy or delivery, pollution from the environment, and visual disorders.

One Murray Hill Mew (at 160 E.
38th St.)
New York, New York 10016

710 **DUBNER, HARRIET W.** Listening: a goal of therapy for the autistic child. *Rehabilitation Literature*, 36(10):306-307, 332, 1975.

Early speech therapy (perhaps as soon as 18 months) is recommended to overcome receptive language disabilities which are often a concomitant of autism. Nonproductive behavioral patterns on the part of the child and his family can result from the lack of verbal communication. A disruptive cycle has often been set in motion before a child is referred for therapy. The goal of early intervention is to help the family provide the optimum environment for the child's social development. Therapy stresses the acquisition of listening abilities through various means. Important facets of treatment involve making the mother aware of the importance of listening, encouraging her to maintain control and not to respond to tyrannical demands which reinforce nonverbal behavior, and suggesting various techniques for encouraging listening. With such training, language can be developed in some autistic children.

Forum School
Waldwick, New Jersey

711 **PENISTON, EUGENE.** Reducing problem behaviors in the severely and profoundly retarded. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:295-299, 1975.

Fourteen PMR and SMR males who exhibited a high frequency rate of physical and verbal aggression as well as some psychotic-like behavior were Ss in a 21-week pilot project based on behavior modification principles. The Ss were housed on a "closed" ward in a large state institution for the MR. Treatment techniques included introduction of tokens for appropriate behavior and token withdrawal, time-out procedures, and overcorrection techniques for extinguishing negative behavior and encouraging socially acceptable outlets. These techniques resulted in the elimination of both extremely aggressive and psychotic-like behavior, with inappropriate behavior suppressed up to 21 weeks following treatment. (4 refs.)

Psychological Services
Petersburg Training School and Hospital
17 Ivy Lane
Petersburg, Virginia 23803

712 **BALL, THOMAS S.; SIBBACH, LOIS; JONES, ROY; STEELE, BUDDY; & FRAZIER, LARRY.** An accelerometer-activated device to control assaultive and self-destructive behaviors in retardates. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:223-228, 1975.

A portable, battery operated electrical pulse generator was evaluated in 5 assaultive and/or self destructive MRs. The device delivers an aversive, harmless shock to the skin in response to activation of accelerometers attached to a nonrestraining jacket worn by the S. The accelerometers respond only to violent movements or impact forces, allowing Ss to move freely through an environment and to engage in normal activities without receiving shock. Observation of the device and its effects suggests that the basic procedure has a real potential as a technique for controlling self-injurious behavior and assaultiveness. There was little to indicate the development of adverse side-effects. With 1 S, the jacket retained its effectiveness for over 1½ years. With 3 Ss, the jacket was successfully faded out for extended periods of time and control generalized across settings and people. (13 refs.)

Neuropsychiatric Institute
Pacific State Hospital Research Group
P.O. Box 100-R
Pomona, California 91766

713 **EASTHAM, R. D.; JANCAR, J.; & CAMERON, J. D.** Red cell folate and macrocytosis during long-term anticonvulsant therapy in non-anemic mentally retarded epileptics. *British Journal of Psychiatry*, 126:263-265, 1975.

A 3 month trial of yeast tablets in 50 nonanemic adult MRs and 54 nonanemic MR epileptics on long-term anticonvulsant therapy was based on the confirmation of mild macrocytosis during anticonvulsant therapy. The initial trial and subsequent long-term treatment with yeast in epileptic patients showed that red cell folate deficiency can be safely repaired in this way and that future deficiency can be prevented. The level at which no response to yeast occurred in the series was approximately 260ng per ml, which corresponds to red cell folate concentrations found in normal control subjects. Administration of prophylactic yeast tablets to all hospitalized epileptic patients treated with anticonvulsants is now an established practice. (6 refs.)

Frenchay Hospital
Bristol, BS16 1 LE, England

714 **AZRIN, N. H.; & WESOLOWSKI, M. D.** Eliminating habitual vomiting in a retarded adult by positive practice and self-correction. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:145-148, 1975.

Although 2 negative reinforcement procedures (timeout by seclusion or required bed rest) did not appreciably reduce vomiting in a PMR women who vomited regularly for no discernible medical reason, a combined self-correction and positive practice procedure entirely eliminated the vomiting. The S had been vomiting on herself and her bed about twice a day for many years. Successful treatment required the S to clean up the vomit and to practice the correct manner of handling an urge to vomit. Uninhibited vomiting stopped entirely after 1 week, with no relapse after 1 year. Although the patient occasionally did vomit, she used the toilet as she had been taught. Advantages of the positive practice and re-educative methods are noted. (15 refs.)

Behavior Research Laboratory
Anna State Hospital
Anna, Illinois 62906

715 **CALHOUN, KAREN S.; & MATHERNE, PAULA.** The effects of varying schedules of time out on aggressive behavior of a retarded girl. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:139-143, 1975.

To examine the effects of intermittent schedules on the original suppression of disruptive aggressive behavior in a 7-year-old MR girl, 3 schedules of timeout were compared. The S was placed in a 4-sided structure adjacent to the classroom after fifth (FR5), second (FR2), or every (CRF) aggressive act. Both FR2 and CRF schedules produced significant reductions, with the CRF more effective. The FR5 schedule had no effect on the rate of aggressive behavior. Reductions under FR2 and CRF were maintained after 5 weeks. The effectiveness of a schdeule which is not continuous has practical advantages for parents and teachers. (12 refs.)

Department of Psychology
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716 **FOREYT, JOHN PAUL; & PARKS, JIM T.** Behavioral controls for achieving weight loss in the severely retarded. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:27-29, 1975.

Three SMR obese adults in a day care center were taught to lose weight and maintain losses through a behavioral program. Program components included a manual for parents of Ss, colored tokens to represent food groups, monetary payments for weight loss, and daily weighings. Average weight loss for Ss at the end of the 11 week treatment period was 8.5 pounds and for the 29-week follow-up period, where patients were no longer paid for weight losses, was 15.2 pounds. Observations by the investigator, the center staff, and parents suggested that each of the program's components was important to the Ss, but the order of importance differed. Despite the limited intellectual capacity of the Ss, there was evidence that Ss gained knowledge and instituted self control. (11 refs.)

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6516 Bertner
Houston, Texas 77025

717 **CASH, WANDA M.; & *EVANS, IAN M.** Training pre-school children to modify their retarded siblings' behavior. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:13-16, 1975.

A short training film, with two 6-year-old children as models, successfully taught 3 children (3-6 years old) to be modifiers of their MR siblings' behavior. Teaching skills chosen as target behaviors included prompting, modeling, giving verbal information, calling attention, and the appropriate use of reinforcement. Observations of the children 3 weeks before, immediately after, and 6 weeks after exposure to the film showed that preschool children could be taught to modify the behavior of their younger siblings. The effect of training was evident at followup, although for most skills the Ss tended to be less proficient after 6 weeks. Future studies will examine the quality of instructional performance. (16 refs.)

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2430 Campus Road
Honolulu, Hawaii 96822

718 **LORBER, JOHN.** Isosorbide in the treatment of infantile hydrocephalus. Observations with a new drug. *Clinical Pediatrics*, 14(10):916-919, 1975.

Isosorbide dinitrate, an osmotic agent capable of reducing the formation of cerebral fluid without inducing a significant diuresis, can be a useful adjunct in the management of hydrocephalus in infancy. A 2 phase clinical study showed that isosorbide was frequently effective in infants whose cerebral mantle was over 16mm, was often useful in reducing the abnormal rate of head growth in infants with postmeningitic and posthemorrhagic hydrocephalus, and proved a useful cover in instances when the shunt had to be removed because of colonization. When given early enough in moderate cases, isosorbide can often eliminate the need for surgery, especially in infants having spina bifida. Although the new agent will not replace surgery for the majority of cases of hydrocephalus unassociated with spina bifida, when it is indicated it is safer and more economical than surgery. In case of failure, surgery can always be attempted. (5 refs.)

The Children's Hospital
Sheffield S10 2th, England

719 **HARPER, ROBERT G.** Behavior modification in pediatric practice. *Clinical Pediatrics*, 14(10):962-967, 1975.

General principles of behavior modification are explained, and a basic program for counseling parents in the use of operant techniques for simple behavioral problems in children is outlined. A program which can be instituted with guidance of a pediatrician entails changing the parents' behavior, which in turn alters the child's behavior. A simple program involves: 1) functional analysis of the child's behavior through a structured interview; 2) parental observation of target behaviors and identification of their own actions which may encourage maladaptive behaviors; and 3) consistent application of appropriate reinforcers or negative consequences to produce the desired changes. Although difficult problems should still be referred to psychologists or psychiatrists, the pediatrician should be able to learn to manage more behavior problems in children under the supervision of an experienced behavioral modification specialist. (5 refs.)

Department of Medical Psychology
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Portland, Oregon 97201

720 **NEWMAN, ISADORE.** A critical review and discussion of behavior modification techniques for treating individuals with learning disabilities. (Paper presented at the International Federation of Learning Disabilities, Second International Scientific Conference, Brussels, Belgium, January 3-7, 1975.) 32 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF 76 cents; HC $1.95, plus postage. Order No. ED113864.

An overview of some of the most effective behavior modification techniques for use with learning disabled children compares the medical, psychometric, and behavioral models of learning disability, reviews the criteria used to classify learning disability, reviews the criteria used to classify learning disability and the principles of applying motivational techniques, and examines methodological considerations of the behavioral model, including selection of research design and

the application of statistical procedures such as analysis of variance using multiple regression. One successful behavior modification teaching program increased the on-task time of learning disabled students by using teacher attention as a reinforcer.

721 **STOUDENMIRE, JOHN; & SALTER, LEO.** Conditioning prosocial behaviors in a mentally retarded child without using instruments. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:39-42, 1975.

Conditioning without instruction was successfully used to increase prosocial behavior (including immobile behavior) in a hyperactive, MR 3-year-old girl. The child received no instructions regarding expected behavior or possible rewards, but physical reinforcers (M & M candies) were used. Design features not present in other single S experiments included video tapings, therapy-process data, and alteration of reinforcement contingencies. Results for 8 conditioning sessions reflect a general acquisition function in the first 5 sessions, some reduction in immobility in session 6, a reduction of immobile behavior when reinforcement was withdrawn (session 7), and an increase in immobile time which surpassed all other sessions when contingencies were reinstated (session 8). Data for attending confirm that this behavior was also under the control of reinforcers. (3 refs.)

Mental Health Complex
North Mississippi Medical Center
Tupelo, Mississippi 38801

722 **KING, LARRY W.; & TURNER, RUSSELL D.** Teaching a profoundly retarded adult at home by non-professionals. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:117-121, 1975.

A behavior modification program for a PMR adult was carried out in a home setting by a series of 3 nonprofessional undergraduates with the agreement of the parents. A program was devised to work with 4 target behaviors—dressing, undressing, toilet training, and cooperative social behavior—which were broken into components. Improvements were shown on these behaviors through measures taken during the course of training and on tests conducted at 1-year follow-up. As the program proceeded, the parents' involvement and enthusiasm increased. Although implications of a program based on a single S are limited, results are discussed in terms of the utilization of undergraduates in such programs, the analysis of complex skills into component behaviors, and the maintenance of MRs in the home. (17 refs.)

Camarillo State Hospital
Neuropsychiatric Institute
Box "A"
Camarillo, California 93010

723 **KAZDIN, ALAN E.; & ERICKSON, LYNNE M.** Developing responsiveness to instructions in severely and profoundly retarded residents. *Journal of Behavior Therapy and Experimental Psychiatry*, 6:17-21, 1975.

The effectiveness of reinforcement in developing instruction following behavior was demonstrated in a study involving 15 SMR and PMR institutionalized females. Four groups of residents were sequentially exposed to training in the context of play activity. A multiple baseline design was used. Training entailed reinforcing Ss with cereal and praise and prompting with physical guidance to develop compliance to a series of instructions. Reinforcers for compliance with individual instructions were gradually faded and were only provided after the entire instruction following sequence was completed. Training dramatically increased instruction-following behavior across groups, suggesting that developing responsiveness to instructions may be readily achieved with institutionalized residents. Implications for custodial care are discussed in terms of reduced staff reliance on language when residents fail to follow instructions. (16 refs.)

Department of Psychology
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724 **SIMMONS, JAMES Q., III; TYMCHUK, ALEXANDER J.; & VALENTE, MARIO.** Treatment considerations in mental retardation. *Current Psychiatric Therapies*, 15:15-24, 1975.

Treatment and care of the MR are complex tasks involving family, school, the law, the labor market, and the health system. Children with severe MR

(IQ of 35 or less) usually need institutional care but can learn certain self-help and socialization skills. The trainable MR (IQ 36-51) are capable of a significant level of self-care and socialization and can achieve vocational status within a sheltered workshop. The mildly MR (IQ 52-68) and the borderline MR (IQ 68-83) can attain a sixth grade education or better, as well as vocational and social self-sufficiency. All of the MR show a higher incidence of behavioral deficits and maladaptive behavior than the general population, centering primarily in self-help areas. Types of treatment for MR include drug therapy, psychotherapy, behavior modification, and special education. Anticonvulsants are used to treat brain seizures, stimulants to control hyperactivity, and tranquilizers for psychosis. Psychotherapy is aimed at improvement in behavior, adjustment, and self-concept of the MR and at alleviating the anxieties of their parents. Behavior modification techniques are useful in suppressing or extinguishing maladaptive behavior and promoting self-care skills, appropriate social behavior, and academic achievement. Special education optimizes the MR's chances of surviving in the community. Community resources should provide for the MR's recreation needs, socialization and vocational training, and legal rights. (27 refs.)

725 **BARTON, ELIZABETH SPINDLER.** The problem of generalization in the operant conditioning of social speech in the severely subnormal: use of reversal to establish generalizability. *British Journal of Psychiatry*, 127:376-385, 1975.

In a study of operant conditioning of social speech in SMRs, 3 pairs of Ss received token reinforcement for talking to each other, and rapidly learned to do so. Ss were then observed through a one-way mirror in a bare interview room adjacent to the training room immediately after each training session to determine whether social speech would continue without external reinforcement. Untrained Ss were observed in the bare room with the trained Ss in some instances. A reversal design (baseline, reinforcement, no reinforcement, reinforcement) showed the reinforcement of conversation between patients to be effective, with the rate of speech increasing considerably with reinforcement but decreasing when it was discontinued. Only the pair who seemed responsive to social as well as token reinforcement exhibited generalization significantly above baseline levels. (6 refs.)

726 **KIRMAN, BRIAN.** Drug therapy in mental handicap. *British Journal of Psychiatry*, 127:545-549, 1975.

Caution in prescribing sedatives and other drugs for institutionalized MR patients is advised in light of the heterogeneous nature of behavior problems associated with MR and possible institutional causes. The nature of the institution and the regime, including the lack of suitable activities and employment opportunities, often gives rise to many behavioral disturbances which are routinely treated with drugs. Environmental manipulation would often be more appropriate than the indiscriminate use of tranquilizers and sedatives. Contrary to the general assumption, psychotherapy is successful with some MR people. The counterpart of psychotherapy for those with more severe MR includes the setting up of a patient-oriented regime, occupation, and distraction, along with behavior shaping. Except for a few specific indications, such as some behavioral states resulting from epilepsy or schizophrenia, drugs should be used only as a holding device. (34 refs.)

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Queen Mary's Hospital for Children
Carshalton, Surrey, England

727 **WERRY, JOHN S,; & AMAN, MICHAEL G.** Methylphenidate and haloperidol in children: effects on attention, memory, and activity. *Archives of General Psychiatry*, 32(6):790-795, 1975.

Twenty-four hyperactive or unsocialized-aggressive children (4 girls and 20 boys; chronological age 4 years 11 mos to 12 years 4 mos; IQ 70 to 130) participated in an exploratory double-blind crossover study comparing the cognitive effects of methylphenidate hydrochloride (0.3mg/kg), 2 doses (0.025 and 0.05mg/kg) of haloperidol, and inert placebo. Each S received each of 4 drug conditions, drug order being randomized by a Latin square design. At the conclusion of every 18-day trial period, attention, immediate recognition memory, reaction times, and seat activity were tested. In all significant ($p<.05$) results, the rank order of the means was methylphenidate, haloperidol (low), placebo, and haloperidol (high). While the chief source of significance lay in the differences between methylphenidate and the high dose of haloperidol, there was 1 instance of

significant difference between the low dose and the high dose of haloperidol. Thus, the data suggest that methylphenidate, and to a lesser extent haloperidol in a dose of 0.025mg/kg, improve cognitive functions, whereas haloperidol in a dose of 0.05mg/kg may possibly cause them to deteriorate, at least under the conditions of the present study (3 weeks' administration of drugs and laboratory tests of cognitive function). These results contrast with effects on social behavior where a high dose of haloperidol was preferable to placebo in social control of children. (37 refs.)

Department of Psychiatry
School of Medicine
University of Auckland PB
Auckland, New Zealand

728 **FENICHEL, GERALD M.** Pros and cons of drug therapy in the management of the hyperactive child. *Clinical Proceedings, Children's Hospital National Medical Center*, 31(3):49-51, 1975.

An overview of hyperactivity in the child is presented, with emphasis on management of the child with an abnormal quality of activity that results from a poor attention span or distractibility. The primary characteristic of the hyperactivity of poor attention span is that of being poorly directed or stimulus-bound. Such a child will have difficulties in school and be a problem to teachers, parents, peers, and siblings. This hyperactivity should be considered an environmental problem and may require the behavior modification of many individuals to resolve. Drugs are of secondary importance to the behavior modification of parents, teachers, and child. Psychotropic drugs used as attention stimulants should be used only in school-age children and employed only as an aid in making the child more amenable to behavior modification. Dextroamphetamine (Dexadrine) and methylphenidate (Ritalin) are the most commonly used drugs for hyperactivity, but Dexadrine is preferred because it is available as a sustained-release spansule. Since both drugs produce a growth failure in a child medicated daily for years, it is stressed that, when the primary treatment effort is placed in behavior modification,very few children need be medicated for more than 2 school years.

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729 **WISE, JAMES H.** Extinction of headbanging in a six year old utilizing a behavior modification procedure. *Clinical Proceedings, Children's Hospital National Medical Center*, 31(6):114-118, 1975.

A brief summary of the literature on headbanging is presented, and a case study of extinction of chronic headbanging in a 6-year-old female is described. Of interest to the case were the child's resistance to "being held" as an infant, the history of an uncle who continued to headbang at 20 years of age, and a cold, unmothering grandmother. No specific signs of emotional distress were observed in the patient, and a behavior modification approach to treatment was instituted. The therapy required only 4 sessions to administer, and after 25 days, headbanging was virtually eliminated and reinforcement reduced to 1 in 14 occasions. Follow-up 2½ years later indicated complete cessation of headbanging, with no symptom substitution. The procedure is not applicable with a preverbal child. (12 refs.)

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Children's Hospital National
Medical Center
Washington, D.C.

730 **BRANNAN, ARNOLD CLARK.** Programs for the hearing impaired in state facilities for the mentally retarded. *Dissertation Abstracts International*, 35(10):6539A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-7390.

The characteristics of the hearing impaired (HI)/MR population in facilities for MRs, programs available to these residents, and the characteristics of the staffs employed to assist these residents were studied by means of a comprehensive survey questionnaire mailed to 212 state facilities for MRs throughout the United States. Responses were received from 181 (85 percent) of the total contacted. An analysis of survey data indicated that 11,463 (8.41 percent) of the total MR resident population of the participating facilities had some degree of hearing impairment. Programs for the HI/MR varied greatly in the number of residents served, and no significant correlation was found between the age of the facility and the quality of the program.

Significant differences were found between certain size groups and the quality of the special program available. The attempt to determine the number and character of the personnel involved primarily with HI/MR residents in these facilities was largely unsuccessful.

731 **MANGES, KENNETH JAY.** Relative reinforcing efficacy of stimuli from three different sense modalities with severe and profound retardates. *Dissertation Abstracts International*, 35(10):6514A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-7348.

Visual, auditory, and tactile stimuli were investigated as reinforcement for a motor task with 24 SMR and PMR children. Ss each received one treatment session consisting of a 10-minute acquisition and a 5-minute extinction phase. A 2 x 2 x 2 analysis of variance was conducted. Ss' behavior indicated a significant auditory and tactile interaction, and resistance to extinction data showed that the auditory treatment resulted in a significant effect. The results were interpreted to mean that presence of auditory stimulation during acquisition resulted in decreased responding and that Ss exposed to auditory stimulation were less resistant to extinction than Ss not exposed to auditory stimulation.

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College Park, Maryland

732 **REINKE, MARY MARGARET.** The effects of experimentally induced frustration on the behavior of mentally retarded adults before and after exposure to an appropriate model. *Dissertation Abstracts International*, 35(9):5973A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 74-27,756.

Nine adult moderately MR males (CA 20 to 30 years) selected from among the residents of a privately owned center for developmentally retarded adults were tested for the effects of various experimentally induced frustration conditions on their performance of an operant motor task employing delay of reward, thwarting of ongoing behavior, and conflict operations. After random assignment to 1 of the 3 tasks, Ss participated in a 3-phase experiment consisting of 2 baseline-frustration-baseline periods and 1 phase involving exposure to a social model demonstrating appropriate behavior. Results indicated changes in Ss' performance after the introduction of frustration and when frustration was reintroduced after exposure to a social model. Differences were also observed among the frequency of nontask-related behaviors following the introduction of frustration and when frustration was reintroduced after exposure to a social model. Analyses of variance demonstrated differences in performance under diverse frustration conditions and before and after exposure to a social model.

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PROGRAMMATIC ASPECTS — Planning and Legislative

733 President's Committee on Mental Retardation. *Mental Retardation and the Law: A Report on Status of Current Court Cases.* Washington, D.C., 1975. 40 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MR $0.95, plus postage. Order No. 112547.

An analysis of the consent decree in New York State Association for Retarded Children v. Carey (the Willowbrook case) is featured, and summaries are presented for 25 new cases and 34 previously reported cases. The Willowbrook case is significant in having provided relief for institutionalized MR based on the theory of right to protection from harm. Other cases reported concern architectural barriers, classification, commitment, custody, education, employment, protection from harm, guardianship, sterilization, treatment, and voting.

734 **TURNBULL, H. RUTHERFORD, III.** Accountability: an overview of the impact of litigation on professionals. *Exceptional Children*, 41(6):427-433, 1975.

The application of the accountability principle to professionals involved with the handicapped is based on legal theories of due process and equal treatment under law. Although standards for ensuring accountability have recently been created by mental health and professional groups, the courts (who received the duty of requiring accountability by default) have hesitated in requiring full and immediate compliance with professional standards for various practical reasons. Cases are noted which represent attempts to ensure accountability by dealing with right to treatment, right to access to records; provision for individualized educational needs of handicapped students; and personal accountability of doctors for inadequacies of treatment based on bad faith. Although physicians have been the most likely persons against whom accountability principles have been applied, educators and other professionals should be held personaly accountable. (25 refs.)

735 **MUTH, JOHN W.; & SINGELL, LARRY D.** Costs and benefits of training educable students: the Kansas Work-Study Project reconsidered. *Exceptional Children*, 41(5):334-335, 1975.

An economic analysis of the Kansas Work-Study Project for EMR students shows that the project was a success if income differentials between experimental groups (groups receiving both education and vocational experience) and comparison groups (educational experiences only) continued for a period of 3 to 5 years. Total costs for 30 students in the work-study program were $157,077 in excess of costs of regular education. Five years after the program ended, at a 6 percent discount rate, the value of wages received by participants was $22,472 higher than it would have been without the program, even after program costs were deducted. Projects which have the employability or earnings potential of students as their major objective should consider the economic costs and benefits involved. (1 ref.)

Department of Economics
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Boulder, Colorado

736 **FRIEDMAN, PAUL R.; & BECK, RONNA LEE.** *Mental Retardation and the Law: A Report on Status of Current Court Cases.* Washington, D.C.: President's Committee on Mental Retardation, 1975. 111 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $5.70, plus postage. Order No. ED115051.

The status of 104 current court cases which affect the MR is reported. Cases reviewed involve decisions on architectural barriers, classification, commitment, custody, education, employment, guardianship, protection from harm, sterilization, treatment, voting, and zoning. An analysis of the Supreme Court's decision on O'Conner v. Donaldson is featured.

737 **MUELLER, MAX W.; & SONTAG, ED.** Planning research for the severely handicapped. *Education and Training of the Mentally Retarded*, 10(2):126-128, 1975.

A planning conference was held by the Bureau of Education for the Handicapped of the U.S. Office of Education as part of an effort to determine how research can most effectively contribute to 6 issues related to the assurance of equal education opportunities for all handicapped children. Issues selected as high priority for research and program development included: assessing both the immediate and long-range effects of alternative delivery systems; exporing mechanisms to facilitate dissemination of information among researchers, teachers, parents, and professionals in allied fields; development of effective means for preparing school age children (especially adolescents) for parenthood; and research on casefinding and early identification of handicapped children. Analysis of conference recommendations will lead to refinement of the ideas presented into a more systematic design for research and may reveal additional issues of critical importance.

Research Projects Branch
Bureau for the Handicapped
U.S. Office of Education
Washington, D.C.

738 **FELICETTI, DANIEL A.** Introduction. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 1, pp. 1-7.

Although citizens with mental and emotional disabilities have not mobilized politically in Congress, over the past decade mental health and MR interest groups have put together a unique lobbying establishment on Capitol Hill. Representatives of the nation's psychological and educational communities, on behalf of some of America'a most disadvantaged people, have sent their emissaries to help influence congressional actions. Approximately one American in 10 must cope personally with the problems of mental illness at some time in his life. The problems of mental illness and MR cause grief to the people affected directly, and they constitute a segment of America's broader concern with the effects of poverty. Social costs of mental problems are enormous when calculated in terms of human suffering. The severity of institutionalized treatment in certain settings is appalling. The Washington, D.C., representatives of the nation's mentally ill and MR are alarmed by the dimensions of America's critical social dilemmas and devote their energies to confronting Congress with a painful view of the country's mind. (18 refs.)

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739 **FELICETTI, DANIEL A.** Lobbies and research. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 2, pp. 8-17.

The lobbying activities of health groups were researched through an examination of definitions of lobbying in the literature and the gathering and classification of data from documents, interviews, and questionnaires. The accepted concept of lobbying is broad and political rather than legal, and a lobby has come to mean any organization that communicates with a congressman or staff member in the hope of influencing a congressional decision. The methodology employed included an examination of relevant congressional hearings, journal articles, newspaper accounts, books, and other materials, as well as interviews. The categories Federalists and Traditionalists were used to distinguish contrasting basic interest-group philosophies operating on the Congress. Interviews were conducted initially in late 1969 and early 1970, with interviewees selected primarily on the basis of their group's participation in congressional hearings from 1955-1965. A second round of interviews was conducted in late 1972 and early 1973. After the completion of useful exploratory interviews and meaningful discussions with people willing to pretest the questionnaires, questions were directed at interviewees. The data obtained were converted into percentages and averaged. (10 refs.)

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740 **FELICETTI, DANIEL A.** The mind lobbies. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 4, pp. 45-85.

As shown by meetings with the representatives, certain important traits predominate among lobbyists for mental health and MR organizations. They tend to be white, male, older, liberal Democrats, and well-educated. Their shared fundamental belief concerns the obligation of the national government to play an important role in meeting the challenge imposed on American communities by mental illness and MR, and they have a common aversion to the many large, nontherapeutic, custodial state institutions in the United States. While differences on specific provisions and the degree of federal responsibility divide lobbies into moderate and strong wings of this some philosophy, 61 groups were recognized as predominantly Federalist in character in the period 1955-1965. Following the revolutionary period of the mid-1960's, Federalists continued to give evidence of their interactions. While always conscious of the need to present a united front wherever possible, the Federalists have been torn by intergroup schisms caused by differences in approaches, interprofessional conflicts, disagreements on how to deal with frustrations caused by the actions of the Nixon administration, and conflicts over national health insurance proposals, professional manpower training cuts, and appropriate research areas, among other factors. (59 refs.)

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741 **FELICETTI, DANIEL A.** The mind lobbyists' tactics. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 5, pp. 86-99.

The mental health and MR lobby is a group whose main interest is the human mind and whose effectiveness is partially dependent upon the skillful use of soft-sell tactics. According to the data obtained from interviews with lobbyists, the mind lobbies have had neither the desire nor the resources to intimidate congressmen and staff personnel. The lobbyists reported that the sending of personal messages to congressmen and congressional staff occurred much less frequently than interoffice contacts by mail, telephone, visit, or delivery of a report. While the exchange of personal messages was not prohibited, interoffice communications were considered more appropriate than intimate contacts at home bases. Although the lobbyists were not remote, they often preferred to maintain a safe political distance. In general, they appeared to be behaviorally sensitive individuals who have attempted to create a politically unsoiled, professional image. Whereas lobbyists generally believed in the usefulness of constituency or grass roots contact with congressmen as part of the total lobbying effort, they overwhelmingly avoided mass media advertisements as a means of publicly pressuring Congress. (14 refs.)

Department of Politics
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742 **FELICETTI, DANIEL A.** The impact of mind lobbies. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 6, pp. 100-119.

Interviews with Congressmen and staff personnel have indicated the significant impact of mind lobbies throughout the years. The effectiveness of the lobbyists was related in large part to the skillfulness of their lobbying activities, with particularly high ratings given for knowledgeability and perseverance. Congressmen not infrequently offered words of praise for Federalists. Seven core Federalist groups—the National Committee Against Mental Illness, the National Association for Retarded Citizens, the National Association for Mental Health, the U.S. Department of Health, Education and Welfare, the American Psychiatric Association, the National Association of State Mental Health Program Directors, and the National Council of Community Mental Health Centers—were perceived to have been the most influential. While they are generally unknown to the population at large, the legislative reputations of these groups are an outgrowth of years of steady input. At the present time, proposals to extend developmental disabilities legislation are not meeting frontal resistance from the Ford adminis-

tration, and no formidable Traditionalist opposition seems imminent. The American Medical Association, preoccupied with the issue of national health insurance, has tended to remain in the background. Only one important Federalist partner, the Department of HEW, has kept the coalition from maximizing its full impact on congressional legislation. (39 refs.)

Department of Politics
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Fairfield, Connecticut

743 **FELICETTI, DANIEL A.** The 1970s and beyond. In: Felicetti, D. A. *Mental Health and Retardation Politics: the Mind Lobbies in Congress.* New York, New York: Praeger, 1975, Chapter 7, pp. 120-125.

As the mental health and MR lobby approaches the politics of the mid-1970's, it finds itself in the unique position of being well-respected politically but not as dynamic as it was nor as influential as it will probably become. Federalist legislative efforts are being affected temporarily by 2 important crosscurrents—a growing awareness and acceptance of their cause, on the one hand, and national cynicism as a result of inflation and high taxes, on the other. Despite the current lull, lobbyists and congressional participants in this field are optimistic. Lobbyists contend that there is no realistic alternative to federal leadership, and it is not uncommon for them to emphasize that their modest goals alienate none but the most hostile opponents of the various approaches to MR. By the mid-1980's, a sophisticated and relatively low-pressure mental health and MR lobbying coalition will reemerge as a highly effective force in the U.S. Congress, and it can be expected that these lobbyists will help to ensure a prominent federal role in dealing with MR and mental illness in America. (9 refs.)

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744 West Virginia. Commission on Mental Retardation. *Planning for the Developmentally Disabled: Developmental Disabilities Services and Facilities Construction Act of 1970–P.L. 91-517 (July 1, 1975-June 30, 1976).* Charleston, West Virginia, 1975, 78 pp.

The State Plan of West Virginia annual revision, submitted under the provision of the Developmental Disabilities Act of 1970, Public Law 91-517 and Regulations, deals with the planning, administration, provision of services, and construction of facilities for persons with developmental disabilities in West Virginia. It lists the state agencies with responsibility for administration or supervision of the administration of the State Plan, redefines "developmental disability," and outlines the financial administration and the goals and objectives of state services and facilities for the developmentally disabled. Attachments and Appendices deal with short-range and long-range priorities, services provided and state plans, projected services and needs, and planning statements.

State Capitol
Charleston, West Virginia 25305

745 **FELICETTI, DANIEL A.** *Mental Health and Retardation Politics: The Mind Lobbies in Congress.* (Praeger Special Studies in U.S. Economic, Social and Political Issues.) New York, New York: Praeger, 1975, 199 pp.

An overview is provided of the broad scope of lobbying activities conducted by the representatives of mental health and MR groups who seek to influence congressional health legislation. The 3 fairly separate responses to mental illness and MR in the United States are delineated. Background data are given on the lobbyists interviewed to obtain information on lobbying tactics and influence. Appendices include a discussion of problems encountered in interviewing lobbyists, questionnaires completed by lobbyists, 2 memoranda on the Liaison Group on Mental Health, and a listing of the most influenntial organizations and their addresses.

CONTENTS: Introduction; Lobbies and Research; Mental Health, Retardation, and Government: An Overview; The Mind Lobbies; The Mind Lobbyists' Tactics; The Impact of Mind Lobbies; The 1970s and Beyond.

746 **COHEN, FRED.** Advocacy. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 19, pp. 591-615; reaction comment (Marcia Pearce Burgdorf; Wolf Wolfensberger), pp. 615-623.

Case advocacy, the representation of a specific individual in a specific dispute regarding incarceration, right to community services, or some other issue, is most successful when an advocate has a clear orientation towards his client and when this orientation is based upon a deprivation model, rather than a sickness model. Despite worthy law reform efforts on behalf of MRs in recent years, the performance of attorneys as case advocates for the mentally impaired has been very poor. A significant effort has been made to provide case advocates through the New York Mental Health Information Service. However, less advocacy, and thus, less negotiation and open fighting for patients' rights has been noted in the Third and Fourth Departments (northeastern and northwestern New York) than in the First and Second (basically, New York City and its immediate environs). As a general principle, the greater distance from government and the professional establishment, the greater the likelihood that an advocacy program will succeed. Advocates without an institutional role to play and with the need to argue for a position and who (unlike most lawyers) accept the responsibility attendant upon having adopted it as their own can become powerful fighters for respect, dignity, and care for dependent and deprived citizens. Burgdorf describes the activities and goals of the National Center for Law and the Handicapped; Wolfensburger emphasizes the need for multiple safeguard systems to protect the rights and interests of MR citizens. (97 refs.)

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747 **KINDRED, MICHAEL.** Guardianship and limitations upon capacity. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 3, pp. 62-87; reaction comment (Eleanor S. Elkin), pp. 87-92.

In its formal legal statement as well as in its utilization, guardianship law should undergo reform, dominated by the principle of the right to the least restrictive alternative. Whereas limitations upon capacity provide one level of protection and restriction by removing certain legal powers from an individual, guardianship provides a second level by transferring powers to a guardian. Guardianship is simultaneously a legal instrument that can do much to facilitate the maximum participation of some MR citizens in the life of society and a potential instrument of repression and dehumanization. In order to make guardianship available for all whose well-being requires it and to protect these individuals and others from potential inherent abuses, adequate services must be developed to provide MR citizens with opportunities for a full life, and guardianship must be made more sophisticated and individualized. Any new structures created to make guardianship services more generally available must be designed to avoid any conflict of interest on the part of the guardian. Elkin points out that a variety of services must be available if the use of guardianship is to be limited, and that guardians must not have unlimited power over their wards. (102 refs.)

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748 **PRICE, MONROE E.; & BURT, ROBERT A.** Nonconsensual medical procedures and the right to privacy. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 4, pp. 93-112; reaction comment (Karen Lebacqz), pp. 112-114.

From the standpoint of legal analysis, the line between proper and improper state intervention is virtually nonexistent when the individuals subjected to intervention are considered MR. The most flexible technique for disguising the deprivation of rights is the doctrine of consent and voluntariness, with third-party consent being invoked most frequently in regard to the lives of MR citizens. Third-party consent has often justified state control of sexual behavior, in addition to admission to state hospital facilities, questionable forms of treatment, and drug experimentation. Compulsory sterilization statutes have largely fallen into disuse and have been replaced with an emphasis on systematic contraception. An approach to the problems presented by sterilization and its alternatives that is less restrictive than abortion involves child neglect statutes, which are almost always broad enough to authorize compulsory removal of a child from a parent who, because of mental deficiency, is regarded as incapable of childrearing. The courts must begin to examine who a guardian is, how he

is selected, and the foundation of his powers to deprive citizens of life and liberty. An appendix presents a Court Order (January 8, 1974) Setting Standards to govern sterilization of Institutional Residents (Wyatt v. Aderholt, 368 F. Supp. 1383 (M.D. Ala. 1974)). (52 refs.)

University of California
Los Angeles, California

749 **EFFLAND, RICHARD W.** Trusts and estate planning. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 5, pp. 115-132; reaction comment (Melvin D. Heckt), pp. 132-143.

The specialized problems of the MR estator or beneficiary have received little attention, largely because of the inexperience of lawyers in dealing with the special issues related to MR. Securing approval of trustee accounts presents special problems if the beneficiary is MR. When an MR person needs legal services to plan for property he owns, it must be determined whether he lacks the degree of capacity required by law to understand the nature of transferred (inherited) property. The problem of informal approval of accounts recurs here. The validity of spendthrift or protective clauses designed to insulate the trust from future acts of the MR in assigning his interest or incurring debts also presents legal difficulties. Planning for the parents or relative of an MR child is discussed in terms of legal skills required, decisions about personal care, and financial provisions for the support of the MR child. Estate planning for the MR person as client is also discussed. The reaction comment discusses the basic estate plan and specific trust provisions, including determination of trust purpose, determination of trustees, and expression of trustees' powers, duties, and instructions. (93 refs.)

Arizona State University
Tempe, Arizona

750 **WALD, PATRICIA M.** Basic personal and civil rights. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 1, pp. 2-26; reaction comment (Philip Roos and Dennis Haggerty), pp. 26-30.

Human rights to love, marry, and raise children are an integral part of the normalization of MRs. Laws that deny "incompetents" their instinctual relationships without individualized determination are suspect. The structure of the law should be such that these rights cannot be denied anyone until a judicial determination has been made that their exercise will result almost certainly in serious injury to the individual or to someone else. The least restrictive alternative principle, allowing MRs to remain in the community with institutionalization a last resort only, also should be invoked where sex education can deter promiscuity and where birth control devices can adequately replace sterilization. Society should not take infants from MRs before it tries to supplement their limited resources with needed services. Communication between MR specialists and lawyers is desperately needed to write better laws, argue better cases, and prevent more injustices to MRs. Roos points out that the traditional legal treatment of the MR exhibits high levels of denial and oversimplification through which the law has condoned the concepts of levels of humanity. Haggerty assigns a portion of the blame for society's treatment of MR to the legal profession. (61 refs.)

751 **KINDRED, MICHAEL; COHEN, JULIUS; PENROD, DAVID; & SHAFFER, THOMAS,** eds. *The Mentally Retarded Citizen and the Law.* (Sponsored by The President's Committee on Mental Retardation.) New York, New York: Free Press, 1976. 738 pp. $18.95.

The legal status of the MR citizen within the community and the institutionalized setting is explored. The right to adequate income and employment, to community services, and to the least restrictive alternative with regard to institutionalization is discussed, and trusts and estate planning for MRs are considered. The treatment of MRs within the framework of the criminal law code is also reviewed, and a Table of Cases is included. The papers are preceded by editorial introductions and followed by one or more reaction comments.

CONTENTS: Personal and Civil Rights of MR Citizens; Rights of MR Citizens within Community Systems; Institutionalization and the Rights of MR Citizens; The MR Citizen and the Criminal and Correctional Process.

752 **U.S. CONGRESS. HOUSE. APPROPRIATIONS COMMITTEE. DEPARTMENT OF LABOR AND HEALTH, EDUCATION, AND WELFARE APPROPRIATIONS FOR 1977.** Part 2, Department of HEW Hearings, 19 February 1976. House Appropriations Subcommittee Supplementary Data (Fiscal Year 1977 Congressional Hearing), pp. 500-560.

A report prepared by the Office of Handicapped Individuals of the Office of Human Development outlines salient features of the Federal commitment in combating MR, with emphasis on the coordination of MR programs. During Fiscal Year 1976, approximately $1.9 billion was obligated by the Department of Health, Education, and Welfare for MR programs, ranging in diversity from maternal and infant care to income maintenance for the aged MR. Activities and programs of the Department are summarized under the headings Office of Education, Public Health Service, Social Security Administration, Social and Rehabilitative Service, Office of Human Development, Office of the Secretary, and Federal Property Assistance Program.

753 **CURRAN, WILLIAM J.** The right to psychiatric treatment: a "simple decision" in the Supreme Court. *New England Journal of Medicine*, 293(10):487-488, 1975.

Court rulings dealing with the right to treatment of the mentally ill and MR are briefly reviewed, and the Supreme Court ruling in O'Connor versus Donaldson is examined. In ruling unanimously that a patient must be released from custody at his own request when he is not dangerous to himself or others and is not currently receiving treatment, the Court was more cautious than an Alabama federal district court, which imposed very detailed conditions for treatment of the mentally ill and habilitation of the MR. The Supreme Court ruling avoided the crucial question of whether a mentally ill patient who is dangerous to himself or others can be held involuntarily in a mental hospital without treatment. The decision to release Kenneth Donaldson, a Florida man who had been confined for nearly 15 years, was simplistic and the case may spawn further litigation. (10 refs.)

754 **KRAMER, JOHN R.** The right not to be mentally retarded. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 2, pp. 31-59; reaction comment (Louis Z. Cooper), pp. 60-61.

Although a substantial body of data links poverty-induced malnutrition, inadequate prenatal and postnatal medical attention, and environmental poisoning from such sources as lead to the damage to intellectual functioning that occurs during the prenatal period, the birth process, and the first 5 to 8 years of life, the ability of the government to respond affirmatively to the situation seems minimal. Currently, the right not to be MR has no meaningful judicial, legislative, or executive foundation. The right to be born intellectually unimpaired has no constitutional grounding in the fifth, ninth, or fourteenth amendments at present; the courts are restricted by current consitutional interpretations; Congress is limited by lack of sympathy for particular programs or by operational difficulties; and the executive branch fails to implement enacted programs aggressively. The practice of preventive law is vitally needed as a replacement for creation of remedies for MR long after the damage has been done. Cooper emphasizes the connection between poverty and MR and calls upon lawyers to make their impact felt through the legislative process. (202 refs.)

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755 **HALPERN, CHARLES R.** The right to habilitation. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 13, pp. 384-406; reaction comment (David J. Rothman; Kenneth D. Gaver), pp. 407-416.

The right to habilitation, a term coined to describe a constellation of legal rights which belong to MR citizens who are confined in institutions, is grounded upon various constitutional bases and has formed the core of recent litigation (Wyatt v. Stickney, Burnham v. Department of Public Health, the Willowbrook case) questioning the continued existence of institutions and asserting the rights of due process, equal protection, and freedom from cruel and unusual punishment for

MR individuals. Probably the most important question raised by the recent court decisions is how to ensure adequate community services for MRs. The alarming potential result of the past litigation would be that nothing will happen, despite the assertion of significant legal principles. Concerned communities, MR professionals, and lawyers must seize the opportunity presented by recent judicial attention to such problems of MR citizens as sterilization, the basis for "express and informed consent" by an MR resident, constraints on experimentation with MRs, limitations on the use of behavior modification techniques with MRs, and restrictions on aversive conditioning. Rothman presents a historical review of the development of institutions in the U.S. Gaver emphasizes the impetus that judicial intervention has provided for reform within the legislative and administrative branches of government and outlines steps administrators can take in response to the new awareness of legal rights of the MR. (130 refs.)

756 **BURT, ROBERT A.** Beyond the right to habilitation. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 14, pp. 417-436; reaction comment (James D. Clements; Gunnar Dybwad), pp. 437-441.

Despite the dramatic success of recent legal actions against state agencies to improve services for MR citizens and those alleged to be MR, their promise as a new forum for forcing official and public attention on the multiple handicaps with which the state burdens the disabled may be short-lived. The court ruled in *Wyatt v. Stickney* that institutionalized MRs have a constitutional "right to rehabilitation." However, this legal theory may not be fully accepted, and the remedy most clearly following from this theory—that conditions in residential institutions for MRs should be improved—may not prove useful in working important improvements in the situation of MR individuals. Through *Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania,* the state policy of excluding "uneducable" children from the public school system was reversed, and the state was required to institute extensive remedial education programs for MR children. *Diana v. State Board of Education* invalidated the classification and standards procedures used by a local California school district to place Mexican-American children in special classes for slow learners. Future litigation must develop an extensive factual demonstration that the MR label is stigmatizing, incapacitating, and unjust. Clements holds out some hope for a future community in which segregation of MR citizens is exceptional. Dybwad emphasizes the need for applied and programmatic research. (94 refs.)

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Ann Arbor, Michigan

757 **STRAUSS, PETER L.** Due process in civil commitment and elsewhere. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 15, pp. 442-474; reaction comment (Bruce J. Ennis; Robert A. Sprecker), pp. 474-484.

The fact that MR citizens share equally with all others the constitutional right not to be deprived of life, liberty, or property except by "due process of law" is unquestioned, yet the special meaning of this guarantee in particular cases is problematic. Due process requirements vary according to the importance of the interests concerned and the nature of subsequent procedures. The decisions that will have to be made for MRs range from educational classification of children to guardianship decisions, placements in sheltered workshops, and commitment to state schools. The institutionalization process must be structured to expose conflicts of interest and improper attempts by state or family to abuse the weaknesses that may accompany MR. It is essential to provide checks on, and a means of confirmation for, diagnoses and prescriptions for care that are necessarily uncertain. Ennis asserts that a much greater involvement of the courts in the commitment process is required to implement the principle of the least restrictive alternative. Sprecker emphasizes the great need for legal reform in the commitment area and the necessity for federal court involvement. (157 refs.)

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New York, New York

758 **CHAMBERS, DAVID; GLENN, LINDA; ABESON, ALAN; LIPPMAN, LEOPOLD; & NORLEY, DOLORES.** The right to the least restrictive alternative. In: Kindred,

M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 16, pp. 485-527.

The state must pursue its purposes with respect to MR citizens by the least restrictive possible means appropriate to the achievement of legitimate goals. Any court that accepts the principle of the least restrictive alternative must also concern itself with the method for implementing the principle. Too often, programs for MRs, especially institutional programs, interpret the MR label to mean that an individual requires sheltering in all spheres of life. The overcontrol runs counter to the principle of normalization, which has specific implications within the areas of integration, appropriate interpretations and structures, specialization, developmental growth orientation, and quality of setting. Implementation of the least restrictive alternative forces educators, who make placement decisions, to presume at the start that all children can benefit from a regular education; if a child is unable to participate successfully in this setting, he can then be placed in a special education class. A multi-level system of guardianship provides protection for MRs through the least restrictive mechanism appropriate to the individual case. In the context of law enforcement, police handling of MR citizens should not be more or less restrictive than handling of non-MR citizens; the citizen in question should be treated with dignity, respect, and all processes due to him under law. (105 refs.)

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Ann Arbor, Michigan

759 **MORRIS, NORVAL.** Special doctrinal treatment in criminal law. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York; Free Press, 1976, Chapter 22, pp. 681-687; reaction comment (Vincent J. Ziccardi), pp. 687-692.

Experience and analysis have proven the detriment of a relationship between the criminal law power and the mental health power of the state and have shown that the convicted criminal had best be regarded as a citizen, for all purposes of treatment, whether or not he is mentally ill or MR. Supposedly benevolent special rules often work great hardship on the MR individuals they are designed to help. Double stigmatization is often expressed in terms of average longer periods of incarceration. Hospital authorities are exceedingly hesitant to discharge or even to authorize brief community leaves for confined mentally ill or MR patients with criminal charges outstanding. If an offender is judged incompetent to stand trial, he is lock up protractedly. If there is no advantage to the suspect in delay, he should be tried promptly and not commited under the guise of kindness and concern. The incompetency plea and the insanity defense should be abolished, and MR and mentally ill suspects should be accorded exactly the same rights and responsibilities under the criminal law and the same processes as any other citizen. Ziccardi criticizes Morris' position from the point of view of a criminal defense attorney. (21 refs.)

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Chicago, Illinois

760 **ROWAN, BEVERLY A.** Corrections. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 21, pp. 649-675; reaction comment (Herman Schwartz; H. Carl Haywood), pp. 675-680.

The penal system has been a distinct failure for MR offenders. The shortage of suitable institutional, probation, and other treatment facilities which would provide differential treatment of MRs is the result of disagreement on whether to handle MR offenders as part of an integrated prison system or in specialized facilities; lack of manpower resources in the areas of special education, psychiatry, and psychology; a lack of alternative resources in the community; and a lack of coordination among and within the agencies dealing with MR offenders. Undifferentiated handling has led to positive damage to them. Recognition of MR offenders as a special group should neither excuse their behavior nor allow society to label them as incorrigible and withhold appropriate services. There is an urgent need for specialized programs and facilities, strengthened screening and diagnostic resources, periodic review of institutionalized cases, appropriately trained correctional personnel, community alternatives for offenders who require specialized treatment that can be provided outside the correctional environment, and closer collaboration between mental health professionals and corrections personnel. Schwartz agrees against further segregation of the MR offender; both he and Haywood press for a revaluation of prison programming and criticize the overuse of prisons in general. (58 refs.)

761 **FOX, SANFORD J.** The criminal reform movement. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 20, pp. 626-638; reaction comment (Richard C. Allen; Robert J. Golten), pp. 639-648.

Although MR is ignored in many aspects of the criminal reform movement where it has evident relevance, calling attention to the MR offender in the criminal law may only lead to further indiscriminate abuse of MRs. There has been little input to most reform proposals by individuals sensitive to the needs and problems of MR citizens, and special emphasis on MR offenders would increase community fear and hostility towards them. The problem should be approached in 3 phases. First, reform proposals should be studied thoroughly to document systematically the extent to which they ignore special problems related to MR. Second, a modern criminal justice model should be described from the point of view of MRs. Third, a strategic decision should be made as to whether some or all aspects of the model should be implemented. Allen's proposal for an exceptional offenders court follows his discussion of the impact of 2 recent court decisions on the MR offender. Golten specifies special provisions that should be made for the MR offender in the areas of indentification, trial, disposition, and release. (60 refs.)

762 Framework for decisionmaking. *Social and Rehabilitation Record*, 3(2):12-19, 1976.

A framework that can be used by State officials to make more rational decisions about human service programs and the people they serve and to establish better communication between officials and professionals is the result of part of a 2-year study conducted by the Council of State Governments. The framework does not propose to eliminate the need for trained professionals to make decisions or to assist recipients in making these decisions. It can aid professionals, however, in identifying available options, in classifying the next appropriate treatment step, and in making judgments about expected results. Most important, the framework can assist professionals in identifying bottlenecks for breakdowns in the treatment process. Attempts to apply the framework to 2 target groups—alcoholics and neglected and abused children—in order to give local officials a basis for evaluating its usefulness were met with quite positive reactions. Participants saw the usefulness of the framework as an aid in addressing issues of organizational relationships, allocation of resources, program planning, interrlationships of target groups, professional relationships, politics, and special interest and treatment-process decisions.

PROGRAMMATIC ASPECTS — Community

763 Comptroller General of the United States. Project Head Start: Achievements and problems. Report to the Congress. *Resources in Education (ERIC)*, 11(2):158, 1975. Available from U.S. General Accounting Office, Distribution Section, P.O. Box 1021, Washington, D.C. 20013 (Report No. MWD-75-51; paper, $1.00).

Study findings, recommendations to the Department of Health, Education and Welfare (HEW), and comments from HEW are featured in a review of the activities of 8 Head Start grantees during 1973-1974. Only marginal success was reported in facilitating parent participation in these activities, so that development of alternative means of involving parents is recommended. Head Start programs were found to lack the professional staff, training, facilities, and equipment needed to serve the severely handicapped. Continuing administrative problems discussed include low enrollment, low average daily attendance, and service to ineligible families. Appendixes contain information on the impact of Head Start and HEW comments on the draft report by the General Accounting Office, "Assessment of Project Head Start."

764 **FENTON, JOSEPH.** Contributions of university rehabilitation research and training centers to the rehabilitation of mentally retarded citizens. *Education and Training of the Mentally Retarded*, 10(1):57-64, 1975.

Activities of 3 Federally sponsored rehabilitation Research and Training Centers devoted exclusively to the rehabilitation of MRs are reviewed. Centers are affiliated with the University of Oregon, Texas Tech University, and the University of Wisconsin. They are charged with undertaking research which will improve rehabilitation methodology and service delivery systems, alleviate or stabilize handicapping conditions, and promote maximum social and economic independence. A key part of their mission is the establishment of teaching and training programs to disseminate research findings and promote their utilization. Major concerns of the Centers are psychosocial, educational, vocational, and behavioral studies to help MRs achieve their full potential. The wide spectrum of studies includes the effects of early intervention; the influence of the family; intellectual, emotional, and social growth; learning and performance processes; and vocational training and placement.

Rehabilitation Services Administration
Department of Health, Education
and Welfare
Washington, D.C.

765 **BRADDOCK, DAVID L.; & SOSOWSKY, LARRY.** *Trend Analysis of Administrative Documents Pertinent to the Community Alternatives and Institutional Reform Planning Grant Program. A Report to the U.S. Department of Health, Education, and Welfare.* Reston, Virginia: Council for Exceptional Children, 1975. 90 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $4.43, plus postage. Order No. 112532.

To identify trends in institutional reform and deinstitutionalization of the developmentally disabled, 34 administrative documents from state Developmental Disabilities Councils involved in a federally funded planning grant program were evaluated in terms of legislative, organizational, budgetary, and client centered trends. Data formed the basis for recommendation of needed services and identified deficiencies impeding deinstitutionalization and institutional reform. State document fact sheets are included in the appendixes.

766 Council for Exceptional Children, Reston, Virginia. *Reintegrating Mentally Retarded People into the Community: an Annotated Bibliography of Print and Audiovisual Information and Training Materials.* 31 pp. Available from Council for Exceptional Children, 1920 Association Drive, Reston, Virginia 22091. Free while supply lasts.

Sponsored by the Pregon Rehabilitation Research and Training Center in Mental Retardation and the Rehabilitation Service Administration, this annotated bibliography contains 123 references covering the years 1962 through 1975 compiled from mail surveys, computer searches of national information systems, library searches, and a telephone survey of developmental disabilities consultants. Included are annotations on journal articles, books, booklets, project reports, conference reports and monographs, films, and slides.

767 Texas. Mental Health and MR Department. *Rules of the Commissioner Governing Community Mental Health and Mental Retardation Centers.* Austin, Texas, 1976, 12 pp. (Price unknown.)

The Texas Department of Mental Health and MR has issued specific regulations, effective December 31, 1975, concerning the operations and funding of community mental health and MR centers. Procedures to qualify for state grant-in-aid, awarding of grants-in-aid, standards of care, personnel administration, purchasing procedures, standards of administration, civil rights, contracts for community centers'services, fees for services, quarterly cash requests and community center expenditure reports, auditing procedures, provision of services outside the region, records to be kept of persons served by a community center, enforcement and compliance with rules, and review and amendment provisions are dealt with.

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Capitol Station
Austin, Texas 78711

768 Swedish Board of Health and Welfare. *Day Centers for Mentally Retarded Adults.* English translation from the Swedish. Grunewald, Karl. Brussels, Belgium: International League of Societies for the Mentally Handicapped, 1975, 71 pp. 5 Swiss francs.

Experiences in Sweden with SMR people have shown how the care of these individuals can progress from a situation of passive or restless inactivity to carefully planned and purposeful activity through the use of occupational day centers which provide an enlarged scope of activity, including methods for systematic Activities in Daily Living (ADL) training, social training, motor training, and adult education. These centers are intended for MR adults who cannot obtain employment in the open market or at a sheltered workshop and who are in need of training in areas in addition to work. The centers can be occupational departments in residental homes, or special hospitals. At the occupation day centers, compensation for habilitation can be paid without any particular instruction/training period. The success of the centers is largely dependent upon participating personnel. Although the staff should try to attain the normal 40-hour work week for the clients, schedules should be arranged flexibly, and all training programs should be highly individualized.

769 **CHANDLER, JOSANN; & ROSS, STERLING, JR.** Zoning restrictions and the right to live in the community. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 11, pp. 305-343; reaction comment (John Deutch; Peter Simmons), pp. 343-355.

The new policy of flexible placement of foster homes for MRs in geographic areas most conducive to normalization is being hampered by discriminatory exclusion of family care homes for MRs from residential zones and particularly from single-family residential zones. Zoning was at least initially calculated to enhance the general welfare through restrictions on the full exploitation of an owner's property, but sometimes it has had the additional effect of excluding certain groups of people, especially ethnic minorities and the poor, from particular residential areas. The uniform, mutually enforceable, restrictive private covenant contained in a deed or other instrument which results in a form of "private zoning" creates similar restrictions. Traditionally, the courts have presumed the validity of zoning ordinances and have placed the burden of proof on the challenger. The definition of "family" in zoning ordinances has provided the focal point for constitutional attack in recent years, since zoning ordinances limiting the use of residential structures within certain districts to "single-family" use, without further definition, are a potential vehicle for the exclusion of residential facilities for MRs. Deutsch presents the viewpoint of one faced with the establishment of a group home in a single-family residential district. Simmons pursues the social cost analysis from a comparative view of general theories of such cost. (132 refs.)

770 **GILHOOL, THOMAS K.** The right to community services. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 7, pp. 172-207; reaction comment (Hugh J. Scott; Monroe E. Price), pp. 207-213.

The issue of the right to services provided by the community pertains to the right of all citizens who are different in one way or another to receive needed publicly supported services. Services can be classified as those available generally, to all citizens, and which MRs would use and enjoy in the same way as other citizens (street cleaning, garbage collection, fire and police protection, and perhaps recreation, education, and employment services), those available generally to all citizens which the MR citizen would use in some special way (such as special provisions to enable access to public buildings), those available only to some citizens, categorized on grounds that do not touch on MR as such (public assistance, Medicare, Medicaid, and homemaker services), and those available to MR citizens as such (supervised residential services). With respect to each of the 4 types of services, claims utilizing quite different analysis and argument can be made for access to the service, on the one hand, and for quality of service, on the other. Scott points out that present funding levels for urban school systems present only the choice between total exclusion of a child or inadequate provision for his educational need within a bankrupt school. Price emphasizes that

deinstitutionalization can lead to a closing of institutions without a corresponding development of adequate community services. (372 refs.)

Public Interest Law Center
Philadelphia, Pennsylvania

771 **FOLLMANN, J. F., JR.** Insurance. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 6, pp. 144-165; reaction comment (Franklin C. Smith; Herschel H. Friday), pp. 165-170.

Insurance protection for MR citizens against health risks, loss of income, and loss of life remains largely inadequate despite significant advances in society's attitudes and approaches towards MRs. The legal status of the MR citizen, which has a direct bearing on his insurance protection, is mired in outdated and fallacious concepts. Although a considerable degree of private health insurance coverage is available to MR persons, MRs at lower socioeconomic levels generally must rely on public programs. In almost all types of publicly established programs concerned with the payment of health or medical care expenses, the cost of education, training, and custodial or residential care for MRs is not covered; these costs are sometimes borne, however, through the public school system, vocational training, employment placement, and institutions established for the care of MRs. Medicare, CHAMPUS, Workmen's Compensation, Medicaid, and Veterans Administration programs are discussed in terms of MR coverage. Smith describes insurance programs being sponsored or espoused by the National Association of Retarded Citizens; Friday emphasizes the inadequacies of present health care coverage for MR citizens. (29 refs.)

772 **BOGGS, ELIZABETH M.** Quality control of community services. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 12, pp. 356-377; reaction comment (Philip Caper; Franklin D. Chu), pp. 377-381.

MR children and adults, in or out of institutions, share the basic need to have simultaneous access to the full range of human services. Institutions, properly utilized and operated, represent just one group of elements in a whole continuum of community services. Quality control of services concerns both accreditation and licensure, as well as certification by an organization or agency. All presuppose standards which are the same in community services as in residential facilities, including institutions. What seems to be required for legal enforcement of quality control is a nationally structured system, operated within the government and supplemented by voluntary accreditation. Nongovernmental accrediting groups such as the Joint Commission on the Accreditation of Hospitals and its Accreditation Council on Facilities for the Mentally Retarded have made a great contribution to quality control. Nongovernmental accreditation should continue to have a vital role in improving the quality of services, but the public responsibility for maintaining minimum standards on behalf of the consumer cannot be delegated to the nongovernmental sector. Caper argues that there is great need for control in health services; Chu points out that quality control mechanisms can become captives of the very groups they are to control. (64 refs.)

773 **KENT, DON.** The real bottomline of EPSDT: Deric & Regina & James & Willie Gene. *Social and Rehabilitation Record,* 3(3):20-22, 1976.

EPSDT (the Early and Periodic Screening, Diagnosis, and Treatment Program) is the first federal health care program to have the potential to serve a large proportion of needy children and the largest federal-state program to provide comprehensive medical care to this group. Thanks to EPSDT, children in Dawson County and Hall County (Georgia), Memphis (Tennessee), Washington County (Maryland), and Contra Costa County (California) have received long overdue care and a better chance to become healthy adults. More and more youngsters are making their encounter with EPSDT as the program gains momentum in many parts of the United States, often in geographic areas where medical service has been most lacking. EPSDT must be an outreach program: it requires the states to seek out actively all those eligible for the program and to offer them services. The health of a large part of America's youth depends upon the pursuit of this responsibility.

774 **PARKER, LINDA CAROL GODSEY.** A comparative study of the post-school community adjustment of educable mentally retarded young adults: those accepting special class placement; those rejecting special class placement; and typical adult community norms. *Dissertation Abstracts International*, 35(10):6542A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-9074.

The community adjustment (employment, leisure, family, civic involvement) of 43 diagnosed EMRs who either accepted or rejected special class placement was compared, and the relationship between the community adjustment of the sample EMR population and the typical adult community member of the same chronological age range was studied. Twenty-eight EMRs had been in special classes, and 15 EMRs had attended regular classes. Ss ranged in age from 16 to 25 years old and had been out of school from 2 to 7 years. Data were collected in personal interviews with Ss using a specially designed questionnaire. The 2 EMR sample populations differed significantly only in the number in the experimental group who had white collar jobs and the method by which bills were paid. The combined EMR sample population and the typical adult community members differed significantly on several family and employment variables of community adjustment. The results of the study indicated that educational setting made no appreciable difference in the variables of community adjustment investigated.

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PROGRAMMATIC ASPECTS – Residential

775 National Center for Health Statistics, Department of Health, Education and Welfare. *Directory of Inpatient Facilities for the Mentally Retarded.* Rockville, Maryland, 1975. 122 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $5.70, plus postage. Order No. ED112546.

The directory lists 1,343 inpatient facilities for the MR in the United States, compiled from the Master Facility Inventory developed by the Division of Health Manpower and Facilities Statistics in the National Center for Health Statistics, and listed alphabetically by state. Addresses of the facilities, ownership, number of beds, and age and sex accepted are usually provided.

776 **SOEFFLING, MARYLANE.** Families for handicapped children: foster and adoptive placement programs. *Exceptional Children*, 41(8):537-543, 1975.

Foster and adoptive placement programs for handicapped children have grown as a result of trends toward normalizing the environment for the handicapped, deinstitutionalizing the severely impaired, and providing increased services to the severely handicapped. The heavy financial burden for education and medical expenses has been eased by legislation in 37 states which provides subsidies to adoptive parents who cannot assume the total economic obligation. In addition to local programs promoting foster care and adoption of handicapped children, national organizations have been established to help find homes for hard to place children. Innovative programs have also been initiated to provide various types of support to families which will help children remain in or return to their natural homes. Organizations and agencies which are fostering home placement of the handicapped are listed.

CEC Information Center
1920 Association Drive
Reston, Virginia 22091

777 **BRADDOCK, DAVID L.** *Analysis of Data Emanating from Surveys of Residential Facilities Conducted by the Accreditation Council for Facilities for the Mentally Retarded. A Report to the U.S. Depart-*

ment of Health, Education and Welfare, Reston, Virginia: Council for Exceptional Children, 1975. 78 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $4.43, plus postage. Order No. ED112533.

Data from surveys conducted by the Accreditation Council for Facilities for the Mentally Retarded were analyzed to determine critical deficiencies in institutional reform related to accreditation. The data indicated that over two-thirds of all critical standards identified were covered in the requirement for active rehabilitation programming for each resident. Evaluation and program planning, documentation, physical environment, and integration of the multihandicapped were ranked as the most critical facility deficiencies. Appendixes contain classified critical standards for all facilities surveyed and the list of 651 standards classified according to topical requirements for residential facilities.

778 **TRUNKFIELD, ARTHUR H.** Intervention team approach to problem solving. Somerset, Kentucky: Kentucky Board for Health Services, 1975. Available from National Technical Information Service, Springfield, Virginia 22161. Paper copy $3.25; microfilm $2.25. Order No. PB-243 287/OGA.

The final report of a project designed to make it possible for eligible residents of Frankfort State Hospital and School to return to the community and to provide a homelike atmosphere for residents likely to remain permanently institutionalized is presented. These goals were to be achieved by improving physical conditions in the ward areas of the residence buildings, providing opportunities for development through self-help, and devising new approaches for training programs for residents. When the grant was transferred to another institution, the same intervention policy was supplemented by contingent management techniques for behavior problems.

779 U.S. Health, Education, and Welfare Department. *People Live in Houses: Profiles of Community Residences for Retarded Children and Adults*. DHEW Report No. (OHD) 75-21006. Sponsored by the President's Committee on Mental Retardation. Washington, D.C.: Superintendent of Documents, U.S. Government Printing Office, 1976, 56 pp. $1.70.

Experience indicates the feasibility as well as the success of community residences for MR infants and children and for MR adults, including older adults. MR infants and children are currently receiving love and support in the natural home setting, in adoptive homes, through foster care, through respite service, through foster group care and supportive services, through community residential training units and crisis assistance units, and in group residences, semipermanent residences, group homes for children, residential care hostels, and short-term behavior shaping residential units. MR adults are supported by adult foster care services and are living in transitional group residences, transitional group homes, transitional hostels, group residences, service club group homes, scattered apartments and apartment complexes, semipermanent group homes, and permanent residences. Older MR adults are enjoying their later years in natural home settings, guardianship trust and home programs, family care residences, senior citizens' group homes, and interdependent apartments.

780 **DRABMAN, RONALD S.** An integrated approach to treating low-functioning children. *Current Psychiatric Therapies*, 15:45-50, 1975.

The Five-Two Program was adopted by the Sagamore Children's Center (Melville, New York) and the Suffolk Center for Emotionally Disturbed Children (Bay Shore, New York) because the staff felt that length of hospital residence for a low-functioning child should be determined by the length of time necessary for the child to reach maximal improvement. The Program stresses operant conditioning techniques and consists of a joint effort by the residential institution, a special school, and the family to make effective use of community facilities. During the child's short-term stay in the residential center for observation, diagnosis, and medication, the parents are taught the fundamentals of behavior modification. The child then spends limited periods at home while the parents practice the techniques they are learning. As the parents' proficiency improves, the child's home visits are extended until he spends 5 days a week with his family and 2 days (usually weekends) in the hospital. If possible, the child

also attends a community school for low-functioning children where the therapy is continued. The Five-Two Program has been successful with the 16 children who have been put on it. The success of the Program suggests that its principles should not be reserved for low-functioning children, but should become part of the changing definition of the role of the residential institution. (3 refs.)

781 **OWENS, HELMI C.** Determining necessary skills for successful independent community living of moderately and severely retarded institutionalized adults. *Dissertation Abstracts International*, 36(5):2743A, 1975. 89 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-23,328.

A *Community Living Skill-Rating Scale* was developed to identify specific skills necessary for placement of MR adults in the community, to establish validity and inter-rater reliability, and to collect data on the identification of specific skills. The scale was submitted to a panel of judges for evaluation and presented to vocational counselors at a state home and training school. Twenty-seven MR young adults already successfully placed in the community were assessed with the scale. It was concluded that the scale was valid and did identify necessary skills for successful community placement, and that even SMRs could live successfully in the community.

782 **CUNNINGHAM, JOSEPH JOHN.** Institutionalization of post-school aged retarded persons of mild and borderline intelligence. *Dissertation Abstracts International*, 36(5):2740A, 1975. 88 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-24,289.

To investigate why borderline and mildly MR adults who had lived in community settings through their adolescence had been admitted to state residential facilities, data were collected on all 58 adult first admissions to Illinois MR institutions for a period of 5 years, and a stratified sample of 14 persons was studied more intensively through focused interviews. Over half of the subjects had been admitted by age 23; more than 75 percent of those admitted had IQs of less than 70; more than 70 percent of the admissions were for the purpose of providing supervision; and nearly 85 percent of the admissions had been living with their parents or siblings before they were institutionalized. Socialization experiences had a significant impact on the degree to which these MR functioned independently as adults. Sponsorship enabled the MR to live in the community, but limited opportunities for the individual to function or attempt to function independently. Findings suggested that government procedures designed to benefit the MR may not function in his best interest.

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783 **FRIEDMAN, PAUL.** Peonage and involuntary servitude. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and The Law.* New York, New York: Free Press, 1976, Chapter 18, pp. 563-582; reaction comment (Linda Z. Tar-Whelan; David Rosen), pp. 582-590.

At present, several legal theories are available to aid the many institutionalized MR residents who are forced to perform, for at most token compensation, labors associated with the maintenance of the institution. Such legal theories might require compensation for this labor or disallow its assignment entirely. The Fair Labor Standards Act arguably requires compensation for institution-maintaining labor, whether or not it is performed voluntarily, and whether or not it is also of therapeutic value. The thirteenth amendment proscribes forced work assignments of no therapeutic value and justifiably proscribes institution-maintaining labor whether or not it is also of therapeutic or training value. Moreover, a constitutional right to treatment ensures that work assignments will not undermine the minimum delivery of adequate and effective treatment. If institutional reform is not forthcoming, effective progress in eliminating institutional labor may depend upon private litigation actions, supplemented by administrative or legislative action. The control of institutional labor is only a first step towards eliminating a wider pattern of discrimination against MRs. Tarr-Whelan presents the views of the American Federation of State, County, and Municipal Employees on institutional peonage. Rosen highlights the need to develop community commitment to extensive community placement programs and the frequent absence of such commitment. (158 refs.)

784 **JOHNSON, ROBERT H.; & WOOD, JAMES JERRY, SR.** Judicial, legislative, and administrative competence in setting institutional standards. In: Kindred, M., et al., eds. *The Mentally Retarded Citizen and the Law.* New York, New York: Free Press, 1976, Chapter 17, pp. 528-560; reaction comment (Charles Acuff), pp. 560-562.

All 3 branches of government have a vital role in and a responsibility for the setting of institutional standards for MR citizens. The legislature has the potential to make great changes in the present system of habilitation delivery, but only to the extent that it can collect and use relevant information. Thus, full-time representation before the legislature by an active MR lobbyist is almost a precondition to progress. The executive branch, charged ultimately with overall responsibility for the proper operation of its MR facilities, must take the lead in seeing that the legislature is provided with carefully drafted proposals reflecting the most current and suitable concepts for provision of services to MR citizens. There is increasing recourse to the federal courts for the setting and enforcement of adequate standards. Objection to court intervention has been based on the view that courts are not competent to set institutional standards because of the difficulties encountered if they attempt to rule on standards for MR facilities and because of the government's traditional separation of powers. Acuff argues against overly specific legislative standards that impair the flexibility of administrators in using scarce resources imaginatively. (74 refs.)

Fitzwilliam, Memering,
Stumbos & DeMers
Sacramento, California

785 **CHOUINARD, EDWARD.** Family homes for adults. *Social and Rehabilitation Record*, 2(2):10-15, 1975.

The Family Homes for Adults Demonstration designed and conducted a program in welfare offices in Pasco, Seattle, and Tacoma (Washington) to meet the needs of people who, because of age, infirmity, physical or emotional handicap, or MR required a protected home situation and some personal supervision to remain in the community. With a minimum of paid advertising and a maximum of free newspaper, radio, and television publicity, the project staffs in all 3 local offices were able to recruit and approve a total of 543 sponsor homes. Over a 3-year period, 1,641 clients were referred for placement, and 540 were placed. An assessment of each client's functioning at the time of placement and subsequently indicated that this type of program is cost effective and can be both rehabilitative and preventive for selected individuals. The client should be in need of the social, emotional, and community support which is more available in the community than in an institution; however, persons with problems of alcoholism, drug abuse, incontinency, violence or impulsive behavior, suicidal tendencies, running away, and sexual problems have a low potential for success in the family home setting.

Regional Rehabilitation Research
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University of Florida
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786 No childhood. *Lancet*, 1(7920):1326-1327, 1975. (Editorial)

Over 8,000 mentally and physically handicapped children in Britain at present live in long-stay hospitals, many of them having been abandoned by their families. Yet they are denied the high standards of care that children who are similarly deprived but not handicapped enjoy in local authority children's homes. This discrepancy in the standards of care of handicapped and nonhandicapped deprived children in the 1970s is taken up in the pamphlet *No Childhood* from the Council for Children's Welfare. Despite the emphasis of the reorganized Health Service on community care, the report notes that an increasing number of hospitals were assuming the role of substitute homes for handicapped children, their staff acting as substitute parents. Most of these children are not acutely ill; they do not require elaborate nursing procedures but, rather, good child care practices; and yet they spend their childhood years in hospitals ill equipped to cope with their situation. *No Childhood* recommends that responsibility for the everyday care of handicapped children should be transferred from the health authorities to the local authorities' social services departments. It suggests that small inpatient units providing intensive rehabilitation programs should be established for the most severely handicapped and disturbed children, who can now benefit from modern techniques of therapy and communication aids. (3 refs.)

PROGRAMMATIC ASPECTS — Recreational

787 **ENSLEY, ROBERT P., ed.** Special libraries services. *Illinois Libraries*, 57(7):445-516, 1975. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $4.43, plus postage. Order No. ED112901.

Needs of the developmentally disabled, physically handicapped, and emotionally disturbed are emphasized in this issue of *Illinois Libraries*. There are articles on library services to the blind, the deaf and hearing impaired, and the mentally ill. Library services in facilities for the MR and in county jails are described, as well as the role of special services consultants.

788 **COPELAND, MILDRED; FORD, LANA; & SOLON, NANCY.** Crafts. In: Copeland, M.; Ford, L.; & Solon, N. *Occupational Therapy for Mentally Retarded Children.* Baltimore, Maryland: University Park Press, 1976, Chapter 8, pp. 157-201.

Crafts are important for the education as well as the enjoyment of MR children, and their selection should be adapted to the individual child in order to provide the greatest possible effectiveness. Three levels of crafts activities are appropriate for MR children. The aide should use level 1 activities when she is unfamiliar with the function level of a child; these activities are recommended for children who have short attention spans and are able to follow simple single commands and to grasp a writing implement in a gross manner. For level 2 activities, the child should have an attention span of approximately 15 to 30 minutes, be able to follow simple verbal instructions, and have good gross motor control as well as a fair degree of fine finger control, such as the ability to cut with scissors. Level 3 activities require that the child be able to attend to the instructor, to concentrate and to be aware of dangers, to follow more complex directions, and to work independently, with minimal supervision; he must also have a good fine and gross motor control and fairly well developed manipulative skills. Appropriate activities such as ceramics, loom weaving, wood working, leathercraft, and minor crafts are described in detail.

Bureau of Child Research
Kansas University Affiliated
Facility
Lawrence, Kansas

789 **HASKINS, JAMES.** *A New Kind of Joy.* Garden City, New York: Doubleday (No date), $7.95.

The story of the Joseph P. Kennedy Jr. Foundation's Special Olympics for the MR, founded in 1963 and now an international event, is presented. The value of the olympics is related through a short history of the program and a portrayal of the competitors. The events are viewed as not only fun for the participants, but a way of helping the MR become more self-reliant and self-sufficient.

790 **SUSSMAN, ELLEN J.** Why art?; Teaching art to the special child; the achievement levels. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapters 1-3, pp. 3-8.

MR children who have little success in school may thrive in the art classroom. Here, engaged in activities which are pleasurable and relaxing, the child gains in social and manipulative skills and improves his general knowledge. Language skills are increased, and directional concepts are learned or reinforced. Art activities help to improve hand coordination, a prerequisite for writing. The children learn about their bodies, colors, and shapes. The best art motivation for MR children is a sample of the work to be done, with its bright colors and beautiful materials. Many art lessons completed by EMR children can be accomplished also by TMR, brain damaged, and emotionally disturbed children. References in the lesson plans to level 1 children (usually chronological age 6 to

8 years, immature, poorly coordinated, with poor language skills and body concept) and level 2 children (chronological age about 9 to 12 years, fairly coordinated, with some language skills and some body concept) facilitate the adaptation of the art lessons to all MR school children.

791 **SUSSMAN, ELLEN J.** Crayons and Cray-Pas. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 4, pp. 9-22.

Art projects using crayons and Cray-Pas are easy, vividly creative activities for the MR child. Leaf rubbing and turkey paper sculpture are achieved with crayons and paper as the basic materials; both are completed within approximately 35 minutes. Cray-Pas oil pastels are used in the scribble design, Cray-Pas scratchboard, portrait of the teacher, letter design, and other projects. These activities are accomplished within 30-50 minutes and teach or reinforce concentration and imagination, the "over and under" concept, body concept, manual coordination, the concepts of "big and little," "upside down," "right side up," and "sideways."

792 **SUSSMAN, ELLEN J.** Paints. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 5, pp. 23-36.

Painting and printmaking activities are very satisfying to MR children, especially if a routine is established to help things run smoothly. The children should be provided with old shirts from home and should receive instruction on how to use the paints and brush. The work table should be covered with newspapers, changed as often as necessary. Each child carries his own paintings to the drying area, thus assuming responsibility for his work. Displaying the work improves the ego of the child. Outline painting, experimental painting with brush strokes and color mixing, and string, straw, and ink blot painting all improve hand coordination and provide unusually attractive results. All of these projects require about 30-40 minutes. Wet paper printing is intriguing for MR children, and kitchen object printing allows children to stamp out the same patterns repeatedly to create a handsome design. Cardboard printing processes give children an opportunity to make some of their own Christmas cards. Each lesson takes approximately 30-50 minutes.

793 **SUSSMAN, ELLEN J.** Collage. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 6, pp. 37-56.

Collage projects for MR children range from cutting and pasting routines, photo montage, and fabric projects to objects made from paper. Instruction in the use of scissors and different kinds of glue is generally needed, particularly for level 1 children. The autumn tree torn paper collage requires no cutting but nevertheless improves coordination. Tissue paper stained glass collages present an attractive effect to children, based upon the blending of colors and the overlapping of shapes. A photo montage can be applied innovatively to a pencil holder, while the use of magazine photographs enables the children to create a photo collage imitating the bizarre quality of dreams. Wall hangings, book marks, and pencil holders designed with felt make attractive gifts, and a valentine drawn in yarn is a creative way for the children to say "I love you." Unusual masks that are appropriate for the children to wear in class plays are made easily from construction paper or tissue paper. All of those projects require lessons ranging from 40 to 50 minutes.

794 **SUSSMAN, ELLEN J.** Mixed media. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 7, pp. 57-61.

Mixed media art projects combine the use of different types of materials and reinforce a wide range of skills for MR children. Writing and illustrating their own book encourages the imagination of MR children and develops their language skills. A book that can be completed in four 40-minute lessons uses a blank book in which the child writes and which he illustrates with a combination of collage and drawing. A class calendar is a good January project which can be completed in 40-50 minutes. After calendar blanks are prepared by ruling lines, each child does an illustration descriptive of one month. Including people in their pictures gives children a stronger feeling of identification with the illustration and helps to improve their body concept.

795 **SUSSMAN, ELLEN J.** Three-dimensional projects. In: Sussman, E. J. *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, Chapter 8, pp. 62-98.

Three-dimensional art projects provide much enjoyment and ample opportunity for creativity on the part of MR children; they even incorporate some physics, since a 3-dimensional art object must be balanced enough to stand. Paper bag puppets and 2-faced paper bag Halloween masks use readily available materials and stretch the children's imagination. During the Christmas season, the children can decorate a green construction paper tree, and they can make attractive Christmas tree ornaments (circle with a curly star, triple loop, star, dove, 3-dimensional snowflake) in 2 lessons. A paper sculpture dreidel that really spins is fun to make for Chanukah. Other 3-dimensional art projects include a bunny Easter basket, papier mache tray or animal, wood and kinetic wire sculpture, stained glass vase, tissue paper animal, and Pariscraft piggy bank or mask.

796 **SUSSMAN, ELLEN J.** *Art Projects for the Mentally Retarded Child.* Springfield, Illinois: Charles C Thomas, 1976, 98 pp. (Price unknown.)

Detailed instructions are provided for teaching MR children to make art objects. Art projects include making piggy banks, masks, kinetic wire sculptures, wood sculptures, papier mache animals and trays, stained glass vases, pencil holders, and paper bag puppets. Gifts and greeting cards are described, and instructions for teaching painting and printing, collage, and projects using crayons and Cray-Pas are given.
CONTENTS: Why Art?; Teaching Art to the Special Child; The Achievement Levels; Crayons and Cray-pas; Paints; Collage; Mixed Media; Three-dimensional Projects.

797 Recreation and handicapped people: a national forum on meeting the recreation and park needs of handicapped people. *Resources in Education (ERIC),* 11(3):70, 1976. 65 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $3.32, plus postage. Order No. ED113902.

The handicapped and recreation and park professionals evaluate the recreation and park needs of handicapped individuals on the basis of a 1974 forum. Delegates' reactions concern segregation vs. integration, the role of the voluntary health agency and its effect on the responsibility of the community recreator, the importance of specially trained personnel (therapeutic recreation professionals), architectural barriers, legislation, financing, the attitudes of nonhandicapped participants, insurance costs, recreation as a rehabilitation tool, the value of consumer input into recreating planning and design, employment of the handicapped in recreation and park occupations, and transportation. State, local, or college level actions are appropriate for certain issues. Among the conclusions drawn, it is emphasized that separate but equal facilities are never an acceptable objective and that 5 percent of all public recreation project funds should be used to ensure and maintain the use of these projects by the handicapped.

798 *Recreation for the Handicapped: A Selection of Recent Books and Pamphlets.* Chicago, Ill.: National Easter Seal Society for Crippled Children and Adults, 1975. 12 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $1.58, plus postage. Order No. ED113905.

Ninety-six publications concerned with the planning and modification of recreational activities for physically handicapped children are listed alphabetically by author or distributor within the subject areas of recreation and recreational activities, residential and day camping, adapted physical education, and handicrafts and hobbies. Entries usually contain the title, author, a brief description of content, number of pages, address of the distributor, and the cost. The bibliography also lists the addresses of 10 national associations and the title, cost, and content of recreational journals they publish.

799 U.S. Education Office. *Annotated Research Bibliography in Physical Education, Recreation, and Psychomotor Function of Mentally Retarded Persons.* (Bureau of Education for the Handicapped.) Klappholz, Lowell, ed. 293

pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, $0.76, plus postage. Order No. ED113907.

A research bibliography covering the years 1888-1975 contains annotations of 439 additional projects on physical education, recreation, and psychomotor function of MR persons. It reviews and analyzes trends and major findings, and it delineates unanswered questions that need to be proven in further studies, projects, and programs. The bibliography lists study entries alphabetically and gives the author, title source, date, pages, and annotations which translate research findings into practical instructional hints, teaching techniques, and related ideas to be used by practitioners. Entries are indexed and cross-indexed in 5 categories: condition, level, chronological age, and sex of Ss; physical, psychomotor, cognitive, and affective characteristics of Ss; physical education, recreation, and psychomotor activities; tests, rating scales, evaluative instruments, and assessment devices; and miscellaneous descriptors.

800 JOHNSON, MARTHA SANFORD. An analysis of leisure behavior in a half-way house for retarded women. *Dissertation Abstracts International*, 36(2):781A-782A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-17,938.

The leisure pursuits of 14 MR young women in a halfway house were examined in a 2-part study. In the first, a 2-week descriptive study, a time-sampling procedure was used, and it was found that most Ss were engaged in relatively passive, nonproductive leisure activities, such as watching television. In the second, an experimental study, a leisure program was conducted on weekday evenings for a period of 4.5 weeks, during which Ss could participate in any of 6 activities offered. With the use of a multiple baseline design, it was demonstrated that instruction in weaving and rug-making increased the percentage of Ss who participated in those activities during the program. While additional reinforcement in the form of prizes contingent upon participation was not needed to maintain high participation levels in these activities following instruction, prizes were more effective than simple availability in maintaining participation in other kinds of activities (painting, card games, modeling clay, and puzzles).

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FAMILY

801 **WOLINSKY, GLORIA F.; & WALKER, SYLVIA.** A home safety inventory for parents of preschool handicapped children. *Teaching Exceptional Children*, 7(3):82-86, 1975.

A home safety inventory is presented which can help parents of disabled preschoolers realistically identify specific hazards in the home for a child with particular handicaps and achieve a balance between the child's safety requirements and his need for active exploration of the environment. The inventory analyzes specific components of the house, room by room, in relationship to the family's needs and lifestyle and has a checklist of possible modifications which can be rated on the basis of their practicality in particular circumstances. The checklist can be used on an individual or group basis

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City University of New York
New York, New York

802 **GREER, BOBBY G.** On being the parent of a handicapped child. *Exceptional Children*, 41(8):519, 1975.

By banding together, parents of handicapped children can find help in solving their practical day to day problems; achieve therapeutic benefits from interaction with other individuals with common problems; and exercise enough clout to bring about social changes which will contribute to the welfare of their children. Daily problems in carrying out parental responsibilities for handicapped children often lead to impatience and feelings of harrassment and resentment which are compounded by romanticized versions of family life, conscious or unconscious guilt about having produced a child with imperfections, and a vague awareness that society is constantly evaluating the manner in which they are carrying out parental responsibilities for the special child. Many of the basic problems faced by handicapped children and their parents stem from society; a common goal of parents must be to change public altitudes toward the MR.

Department of Special Education
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Memphis State University
Memphis, Tennessee

803 **GORHAM, KATHRYN A.** A lost generation of parents. *Exceptional Children*, 41(8):521-525, 1975.

On the basis of her experiences as the mother of an MR child, the director of a community agency serving MRs and their families sets forth suggestions for the improvement of communication between parents of handicapped children and professionals. Suggestions for parents include keeping concise and accurate records; seeking a person to help coordinate diagnostic visits and results; staying in touch with the teacher; keeping well informed about the child's condition; and joining a parent's group. Suggestions for professionals include involving parents in all phases of the diagnostic and treatment process; helping parents with practical problems through a realistic management plan; keeping informed about community resources and guiding parents in their efficient use; preparing clear and understandable reports and sharing them with parents; and making sure the parents understand the child's abilities and assets as well as his defects.

Montgomery County Association for
Retarded Citizens' Family and
Community Services
Silver Spring, Maryland

804 **DEAN, DOROTHY.** Closer look: a parent information service. *Exceptional Children*, 41(8):527-530, 1975.

The National Information Center for the Handicapped (Closer Look) has been disseminating information on services for handicapped children

to parents and professionals since 1970. Informational needs of parents have been met by recommending reading materials to help them understand their child's condition; putting them in touch with local associations or organizations; informing parents of their state's special education law and due process steps for obtaining their rights; and helping groups of parents form coalitions to effect change. Specific information products are also available for professionals who are involved with the handicapped through arrangements with federal and state program managers. Other activities of Closer Look include fostering the development of well designed state and local information and referral services; providing technical assistance to public and private organizations and agencies; and developing a program to teach parents to be their own advocates.

National Information Center
for the Handicapped
Box 1492
Washington, D.C.

805 **FELDMAN, MARTIN A.; BYALICK, ROBERT; & ROSEDALE, MARION PRESTON.** Parent involvement programs-a growing trend in special education. *Exceptional Children*, 41(8):551-554, 1975.

A regular parental participation program was developed at a suburban New York center for education of multiply handicapped adolescents. Goals of the program were to foster a sense of community within the school's broad geographic service area and to effect carryover of the program goals into the home. Initial meetings focused on information sharing (rather than discussion of problems), with emphasis on the center's philosophy and behavioral objectives. After a discussion of the basic tenets of behavioral theory and application of behavior modification techniques, carryover of behavioral techniques into the home was suggested where appropriate. Results indicate more open communication between parents and staff, greater parental trust in and satisfaction with the educational facilities, and good parental response to the use of a home behavioral program. Greater cooperation between parents and staff provided children with a more consistent predictable frame of reference which will maximize their chances to succeed. (9 refs.)

806 **WARFIELD, GRACE J.** Mothers of retarded children review a parent education program. *Exceptional Children*, 41(8):559-562, 1975.

Sixty-one mothers of children enrolled in a day school for MRs evaluated the school's parental involvement through scaled interview items and open-ended questions. Parent involvement through group meetings, teacher conferences, classroom observations, and participation in special activities was a condition of the school's acceptance of each child. The most valuable results of the program, as reported by mothers, were greater knowledge about MR, increased understanding of their own feelings, and more realistic expectations from special education. A high frequency of parent conferences with staff seemed to be significantly related to more benefits to the mother than group meetings or other activities. Teacher assistance in handling crisis situations was valued, with teachers as highly regarded as the clinical psychologist in almost every area in which mothers sought help. Implications for teacher education include a proposed practicum in which trainees work with parents of MRs. (3 refs.)

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Studies
University of Minnesota
Minneapolis, Minnesota

807 **FLINT, WALLACE; & DELOACH, CHARLENE.** A parent involvement program model for handicapped children and their parents. *Exceptional Children*, 41(8):556-557, 1975.

A parent involvement program was developed at Memphis State University to provide information, mutual support, and better communications among parents of children with a heterogeneous mixture of handicapping conditions. Program components included small and large group sessions, supervised recreational activities for the children and their nonhandicapped siblings while parents attended groups, and career training for rehabilitation and special education students. A total of 122 families registered, including 184 children. Large group sessions covered general problems related to raising handicapped children, while small groups led by professional counselors emphasized helping parents develop skills in solving special problems; gain support and mutual

understanding; and organize to take action outside the group meeting. Plans for an expanded program resulted from favorable responses of parents and student workers.

Department of Special Education
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Memphis, Tennessee

808 **O'CONNELL, CHRISTINE Y.** The challenge of parent education. *Exceptional Children*, 41(8):554-556, 1975.

A parent education program at the Nisonger Center for Mental Retardation and Development Disabilities at the Ohio State University was initiated with 12 parents. The program was designed to enable the instructor to speak to parents with children of all ages and various handicaps by developing a theme of common problems. Parents were interested in problems other than their own, were supportive of each other, and acted as disseminators as well as recipients of information on procedures for dealing with problems. The first meeting of the group was critically important in determining parental interests and concerns through a questionnaire which guided the development of the agenda for the rest of the program. Verbal statements made by parents and written evaluations noting changes parents made as a result of the meetings measured individual and group progress. Parent education programs should emphasize procedures for creating a positive home atmosphere.

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809 **GOLDSTEIN, SIDNEY.** The brain damaged parent (a parody on special services.) *Exceptional Children*, 41(8):563-566, 1975.

In a parody on special services, it is suggested that "brain damaged" parents result from living with a brain damaged child. Labeling such parents as atypical may increase adjustment problems of the child. Although all brain damaged parents do not fit into the same mold, many can be identified by frustration, inability to see their child realistically, fantasy, romanticism, and inability to hear the professionals, as well as psychosomatic illnesses, poverty, and hyperactivity. A regimen for the "brain damaged" parents, based on individualized diagnoses and prescriptive folders, includes perceptual training through decoding of legislation and encoding of new laws pertaining to the welfare of their children; a range of medication which includes aspirin, nicotine, caffeine, and alcohol; and counseling and therapy. The ultimate goal of reeducation is to return parents to the larger community.

Physically Handicapped Program
Public School System
Manhatten, New York

810 **ANTONIS, PHYLLIS; & CAPLAN, MARION.** The handicapped family. *Lancet*, 2(7935):603, 1975. (Letter)

Assisting the parents of handicapped children is a professional task of particular difficulty, due to the limited practical resources available to deal with the individual handicaps and the lack of in-depth psychodynamic training among the professional workers concerned. The workers persist in denying and avoiding the continuous suffering they see borne by all family members, and their feelings of helplessness make them adopt an authoritarian attitude towards the family which may further isolate the family and exacerbate the whole problem. A child psychotherapist, trained to accept reality and to satisfy the needs of all family members to the extent possible, is the most suitable professional worker to be a central coordinator who will deal with the family on a continuing basis.

7 Rodborough Road
London NW11, England

811 **BLACKIE, J.; FORREST, A.; & WITCHER, G.** Subcultural mental handicap. *British Journal of Psychiatry*, 127:535-539, 1975.

Subcultural MR is provisionally defined in terms of an interaction of genetic influence and social disadvantage, and a study of 144 Edinburgh families is discussed which highlights the importance of social class as a variable for children with MR and as a factor for families with multiple incidence. Findings are discussed in relation to

Heber's conclusions that maternal intelligence was the best single predictor of level of intellectual development of children of Milwaukee slum families and data which suggest that crowding, large families, family disorganization, and poverty were associated with MR in lower class children from Aberdeen. Suggested intervention strategies include sustained attempts to deliver effective family planning to parents when the first child is selected for special education. (13 refs.)

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New College
Edinburgh, Scotland

812 **BALDAUF, ROBERT J.** Parental intervention. In: Myklebust, H. R., ed. *Progress in Learning Disabilities.* Volume Three. New York, New York: Grune and Stratton, 1975, Chapter 9, pp. 179-199.

In programs for intervention in learning disabilities (LDs), the parent has a role as an advocate, a consumer of educational programs, a participant in the educational treatment process, and an examiner of the future. The advocacy of parent groups has had a marked effect on legislation. Throughout the United States, a revolution has been occurring to establish the right to an adequate education for the handicapped, with parent organizations in the vanguard. As a consumer, the parent must participate in the evaluation and programming of the LD child, or the child may receive less than his rightful, equal, and adequate educational opportunity. Parents can intervene in the main areas of medical examination and study, social and developmental history, vision and hearing examination, and psychological and educational assessment. The parent-participant tutors the LD child on an emergency basis, but proper parent counseling is a more regular and systematic activity. With the awakened interest of fellow parents, educators, legislators, and other specialists, opportunities for the future look promising, and parents' hopes for their children can continue to grow. (13 refs.)

Oak Park Public Schools
Oak Park, Illinois

813 **BACA, GILBERTO MATIAS.** Forty families: A comparative study of Mexican-American and Anglo parents of an institutionalized retarded child. *Dissertation Abstracts International*, 36(5):3128A, 1975. 294 pp. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-25,310.

A cross-cultural exploratory study compared the experiences, beliefs, attitudes, and perceptions of 20 Mexican-American and 20 Anglo families in New Mexico who had institutionalized a MR child. Objects of the investigation were the parents' beliefs about the etiology of MR; their attitudes toward institutionalization; their activities on behalf of the child before it was institutionalized; concern within the nuclear family; and hopes and fears for the child's future. Findings revealed that Mexican-American and Anglo parents of an institutionalized MR underwent similar experiences in endeavoring to comprehend the disability and cope with the problem. They did not differ basically on reasons for institutionalization. Both had resorted to preinstitutional consultation with medical authorities and use of special education classes and other community resources. Mexican-Americans differed significantly from Anglos in adhering to religious explanations of the etiology of MR, with some evidence of superstitious beliefs among a minority. One half of the Mexican-American families had made use of folk medicine, and a few of the **curandero**. There was strong indication of the influence of the extended family system in the decision-making of Mexican-American parents. Neither population believed that there was much chance that the child would ultimately return home, and parents of both derivations were satisfied with most of the services provided by the institution.

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814 **SHUFEIT, LAWRENCE J.; & WURSTER, STANLEY R.** Frequency of divorce among parents of handicapped children. *Resources in Education (ERIC)*, 11(3):71, 1976. 52 pp. Available from ERIC Document Reproduction Service, Box 190, Arlington, Virginia 22210. Price, MF $0.76; HC $3.32, plus postage. Order No. ED113909.

Seventy-six parents of handicapped children were surveyed to compare the frequency of divorce in the sample population to that of the general

United States population. Ss completed questionnaires concerned with such items as the evaluation of their child's degree of handicap and perceptions of their own marital satisfaction or dissatisfaction. The results indicated that the frequency of divorce was not significantly higher among parents of handicapped children than among the population at large and suggested that the presence of a handicapped child in the family does not seriously affect marital stability.

815 **HANNAM, CHARLES.** *Parents and Mentally Handicapped Children.* Harmondsworth, Middlesex, England: Penguin Books, 1975. 128 pp.

Selected interviews with 7 families with a handicapped child include reactions to the handicap, needs of the family, problems families have in planning for the future, and practical recommendations for professionals in working with such families. Consideration is also given to the impact that a handicapped child has on siblings and decisions parents face about having further children after the birth of a handicapped child. A brief bibliography is included.

816 **TAICHERT, LOUISE C.** Parental denial as a factor in the management of the severely retarded child. Discussion of two patients. *Clinical Pediatrics*, 14(7):666-668, 1975.

Two cases are described in which mothers were unable to accept the diagnosis of SMR and continued to search for medical diagnoses to explain very slow development. Both mothers appeared rational and logical when not discussing their MR children. Inability to accept SMR led to a form of severe denial which resulted in marked dissociation from reality. The mother of a hyperactive 7-year-old boy with no speech, bowel, or bladder control perceived her son as having an undiagnosed learning block. The other mother insisted that her 7-year-old daughter, whose measurable intelligence quotient was approximately 24, was emotionally disturbed. Possible factors that contribute to such extreme cases of denial include the need to rescue, the myth that all emotionally disturbed children have normal intellectual potential, and the myth that complete failure of language development in a school-age child can result from emotional disturbance. The role of some practitioners in exploiting denial is discussed. (6 refs.)

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817 The handicapped family. *Lancet*, 2(7931):400-401, 1975. (Editorial)

Three main themes emerged from interviews with parents of MR children which were designed to determine parental attitudes toward professionals who had been trying to help them. Parents indicated that doctors only seem to deal with purely medical problems rather than family difficulties in coping with a MR child; a need exists for practical assistance, including counseling about the nature of their child's handicap; and a need exists for a central coordinating worker. Parents' statements reflect differences in training of physicians, social workers, and other professionals and underscore the need for an effective worker who makes the family the central object of concern. A central coordinator must have thorough training in the psychodynamics of families (particularly the handicapped family) and be empowered to implement the decision of the team whose activities he coordinates. (4 refs.)

818 **EDGERLY, ROBERT FRANCIS.** The effectiveness of parent counseling in the treatment of children with learning disabilities. *Dissertation Abstracts International*, 36(3):1301A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-20,920.

The effect of different treatment combination models was investigated with 40 elementary school children diagnosed as having learning disabilities and 10 sets of parents. Children were subdivided at random into 3 treatment modalities (a combination of parent counseling and tutoring, a combination of information in the mail and tutoring, and tutoring alone) and one comparison modality (regular curriculum). A significant increase (.01) in academic achievement was obtained by the parent counseling and tutoring group. Children in the parent-counseled group showed significant increases (.05) in their Wechsler Intelligence Scale for Children (WISC)

Performance and Full Scale IQ scores, while children in the regular curriculum group showed a significant increase (.05) in their WISC Performance IQ score. All 3 treatment groups showed significant improvements (.01, .05, .01) on the psychomotor variable, but the comparison group remained unchanged. No group achieved a significant increase on the affective variable of self-esteem. The findings indicated that learning disabled children can be assisted to increase their academic performance and that treatment should follow the cognitive-affective model of learning.

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819 **LOMBARDI, VINCENT PAUL.** An exploratory study of family care in the redesign of a system of human services for the mentally retarded in upstate New York. *Dissertation Abstracts International*, 36(2):1116A-1117A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-16,576.

Demographic information on residents and data on supportive services, characteristics of the setting, and personal perspectives were obtained by a forced choice questionnaire from 36 home care parents who collectively had assumed responsibility for a total of 77 MR children and adults. Frequency distributions alone were utilized in the analysis of data. The findings presented a relatively mixed picture. While family care parents were the most effective recruiters of new homes, there was a willingness to take in more residents. Home care parents reported a surprisingly small number of problems. Their expressed preference for discussing matters with peers rather than with staff may be significant. There was modest support in the findings for the conclusion that personal development occurring through enriched human relationships for the individuals placed is achieved in many, if not most, cases.

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Amherst, Massachusetts

820 **TAVORMINA, JOSEPH B.** Relative effectiveness of behavioral and reflective group counseling with parents of mentally retarded children. *Journal of Consulting and Clinical Psychology*, 43(1):22-31, 1975.

The relative effectiveness of behavioral and reflective group parent counseling was evaluated in a study of 51 mothers of MR children. Ss were assigned to behavioral, reflective, or waiting-list control groups. Measures of outcome included direct observations, attitudinal scales, maternal reports, and frequency counts. Both types of counseling seemed to have a beneficial effect relative to the untreated controls; however, a significantly greater magnitude of improvement resulted from the behavioral method. Results were consistent across measures, strongly suggesting that the behavioral technique was the treatment of choice for counseling parents of the MR. The behavioral method provided parents with an understandable, consistent, and effective way to cope with the specific problems they faced in raising their MR children. (29 refs.)

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821 **RETHERFORD, ROBERT ALANSING.** Selected characteristics of foster parents and acceptance of the post institutional retardate into the family structure. *Dissertation Abstracts International*, 35(7):4289A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 74-29,848.

Thirty-six foster parents of postinstitutional MRs and 23 individuals who refused to participate as foster parents after initial application were administered the California Psychological Inventory (CPI) and the Gough Adjective Check List (ACL) to determine differences in personality characteristics. A specially designed Vital Statistics Form was used to collect demographic data. Use of the CPI and the ACL did not indicate any significant personality differences. Analysis of the demographic characteristics showed a significant difference in the variable of chronological age. Among the foster parent group, 94 percent expressed a willingness to continue or repeat their experience with MRs. Age of MRs was a significant factor in the willingness of foster parents to accept them into the family structure, 73 percent of all MRs being accepted at or before age 12.

Brigham Young University
Provo, Utah

PERSONNEL

822 **KRAJICEK, MARILYN J.; & ROBERTS, PAULA.** Nursing. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 17, pp. 363-374.

The nurse may be an integral part of a functional team approach to developmentally disabled children, whether it be an interdisciplinary or a multidisciplinary model. She functions in a variety of capacities, depending upon the setting and the model, but typically she plays an important role in early screening and intervention. The nurse may be involved directly in working with identified high-risk infants and may initiate programs for the high-risk population. She may assist in multidisciplinary clinical settings, including clinics for birth defects and genetics. Early detection of inborn errors of metabolism and the prevention of MR, utilizing standardized screening tests, are important functions. Nursing coordinates the preventive aspect in conjunction with medical and laboratory personnel on a local, state, and regional basis. This coordination involves the participation of the nurse in public and professional education, interpretation of results, and follow-up on laboratory findings. Throughout the process of providing diagnostic assistance to the developmentally disabled child, the nurse gives support to the family by listening to their concerns and clarifying diagnostic procedures. (9 refs.)

School of Nursing
University of Colorado
Medical Center
Denver, Colorado 80220

823 **BAER, MARION TAYLOR.** Nutrition. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 15, pp. 315-340.

The nutritionist represents a significant preventive component of the interdisciplinary team approach to developmentally disabled children. Using the nutritional history and dietary analysis as the most sensitive and predictive of the diagnostic tools available, the nutritionist attempts to correct dietary inadequacies and imbalances before major problems develop. Clinical observations provide a gross indication of the child's status; biochemical analyses measure abnormalities in body fluids which precede clinical symptoms; and dietary assessment may identify marginal nutrient intakes before they have resulted in depleted body stores. These 3 approaches are then correlated and supported by a nutritional history covering all of these aspects plus relevant medical, developmental, and socioeconomic data. The totality of this information provides the basis for individualized intervention. (26 refs.)

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824 **KNOBELOCH, CALVIN.** Speech and language. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 14, pp. 295-313.

The communication process is an integral part of overall child development, and the development of communication skills is the concern of all professionals who deal with the developmentally disabled child. Both speech pathologists and audiologists are concerned with speech, hearing, and language and, in a larger sense, are communication disorders specialists. A primary role of these professionals is to verify the existence of a language disorder, to describe the child's language abilities and disabilities, to identify factors affecting remediation efforts (such as impaired hearing and motor function), and to plan remediation programs. An undetected and untreated language disorder is not a static condition but one which becomes self-perpetuating and increasingly complex. Initially, it affects

the child's language performance; later it may influence cognitive functioning, and, ultimately, it can deprive the child of pleasurable and beneficial communicative experience. Thus, early intervention is vital. The later in life that language intervention procedures are introduced, the more difficult it becomes to alleviate or eliminate a language disorder. (27 refs.)

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825 **SMITH, KENNETH E.** Audiology. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 13, pp. 255-293.

Audiological assessment is a vital part of any multidisciplinary evaluation of developmentally disabled children, since a significant hearing impairment can be a major detriment to the development of normal behavior. The role of the audiologist includes not only the identification of hearing impairment but also the direction of the rehabilitation program through close cooperation with medical and educational specialists. The audiologist can provide a program of long-range follow-up for the hearing-impaired child. He must also be knowledgeable about supportive services for parents; the guilt, hostility, anxiety, and psychiatric problems frequently demonstrated by the parents of these children need direct management. (26 refs.)

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826 **MAGRAB, PHYLLIS R.** Psychology. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 11, pp. 207-231.

Psychologists are involved intimately with developmentally disabled children and are a crucial part of the interdisciplinary team in diagnosis and treatment. At each stage of these processes, the psychologist considers intellectual, social, and emotional factors. In many areas of evaluation he must rely on other professionals, such as language specialists and occupational therapists, to confirm and expand his point of view. Interpretation of all psychological data should be done with emphasis on intervention and planning. Once having diagnosed particular intellectual deficits, the psychologist frequently serves as a support to educators and other professionals in developing suitable learning environments for the child. The areas in which he provides treatment are generally limited to environmental intervention and direct psychological assistance to the affected child and family. He may employ individual child therapy (the psychodynamic or behavioral views) or group therapy to deal with behavioral and emotional problems. He is also involved in providing child management counseling as well as family therapy. (2 refs.)

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827 **THOMPSON, CAROLYN R.** Social work. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 6, pp. 111-127.

The social work profession is relevant to the developmentally disabled population as the supplier of supportive, supplementary, and substitutive child welfare social services. Supportive services, rendered directly to the family or caretaker but benefitting the handicapped individual only indirectly, include a broad range of individual and group counseling endeavors and reflect the need to support those affected by the handicapped individual. Supplementary services are provided directly to the handicapped person and involve implementation of day care, training, medical service, and similar services. Substitutive services absorb parental responsibilities and functions and consist of institutionalization or foster care. Social workers must continually be aware of the essential need to make a complete network of community-based services and specialized residential programs available to the disabled person and his family in order to enhance the social functioning of each individual. Although

great strides have been made towards ensuring the developmentally disabled a place within modern society, his normalization will be implemented fully only when obstacles in public attitude and in bureaucratic barriers to assimilation are overcome. (9 refs.)

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828 **JOHNSTON, ROBERT B.** Medicine. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 7, pp. 129-147.

The multiple roles and approaches of today's physician, and especially of the developmental pediatrician, play a part in the assessment and diagnosis of children with developmental disorders as well as in the development of an appropriate diagnostic and therapeutic program for them. While the family practitioner and the practicing pediatrician make up the bulk of the initial medical involvement with these children, developmental pediatricians supplement the traditional approach by utilizing the knowledge of pediatrics and neurology in the light of the developmental process. Physician intervention in developmental disabilities involves coordination of services, counseling, and the discriminate use of certain medications. Each aspect of assessment, diagnosis, and treatment must be carried out as part of an integrated approach designed to fulfill the total needs of the handicapped child and his family. One physician, whether a pediatrician or a child neurologist, must act as a generalist and orchestrate the long-term intervention necessary in the case of developmentally disabled children. (4 refs.)

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829 **JOHNSTON, ROBERT B.; & MAGRAB, PHYLLIS R.** Introduction to developmental disorders and the interdisciplinary process. In: Johnston, R. B.; & Magrab, P. R., eds. *Developmental Disorders: Assessment, Treatment, Education.* Baltimore, Maryland: University Park Press, 1976, Chapter 1, pp. 3-12.

The interdisciplinary concept is significant to work with developmentally disabled children, since their problems transcend the domain of any single profession. The parent, the pediatrician, and the teacher are key people in the initial phases of identifying disabilities, but a wide range of professional support is usually required for definitive diagnosis, problem identification, and treatment planning. The ultimate goal in the delivery of service to the family with a developmentally disabled child is a well-coordinated interdisciplinary evaluation and habilitation program. Within the interdisciplinary process, the emotional climate of the team, team dynamics, and the style of leadership will have a powerful effect on decisions that are made.

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830 **GIBSON, J.** Care of handicapped children. *Lancet,* 2(7923):35, 1975. (Letter)

The feasibility of allowing adult patients in mental hospitals to assist in caring for MR children residing there is discussed. Under such an arrangement the children would benefit from the security, affection, and constant care provided by the adults, and the adults would benefit from having someone to look after and love. The job of the nurse in this situation is to train the adult for these new duties and responsibilities. The resulting enrichment of the child and adult can be achieved without additional staff, buildings, or money. However, anyone who attempts to institute such a system will have to face the displeasure of the Department of Health, which says that MR children should not be mixed with adults, and pediatricians, to whom the practice is anathema.

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831 **RUDOLPH, CLARENCE LEE.** Factors associated with attitudes toward the mentally retarded of employees of a state institution for the mentally retarded. *Dissertation Abstracts International*, 36(1):223A, 1975. 144 pp. Order No. 75-13,908.

Attitudes of 138 professional and paraprofessional employees of a state institution toward the MR were compared as related to past experience, age, education, sex, race, income, and religious preference. Results indicated that: paraprofessionals had positive attitudes toward having the MR as a client; more highly experienced professionals showed the greatest preference toward having the MR as a client; the paraprofessionals' general knowledge inventory of the MR was higher for the older group than for the younger group; the older professionals' knowledge concerning the MR was higher than that of younger professionals; professional males exhibited more positive attitudes concerning the MR than professional females; professional females' general knowledge inventory was higher than that of their professional male counterparts; black professionals tended to show greater preference toward having the MR as clients than their white counterparts; professional blacks' mean general knowledge inventory scores were considerably higher than those of their white counterparts; paraprofessionals with one year or less tended to perceive the MR more positively than the more educated; professionals with lower levels of education tended to exhibit more accepting attitudes toward the MR than their more educated professional counterparts. Findings were small and in many cases significant at either the .05 or .01 level of confidence.

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832 **GORDON, NEIL.** Learning difficulties: the role of the doctor. *Developmental Medicine and Child Neurology*, 17(1):99-102, 1975.

The multiple roles of the hospital based pediatrician in helping children with learning difficulties are delineated. They include making the diagnosis, attempting to identify and prevent problems stemming from multiple handicaps, dealing with family problems which result from school underachievement, analyzing learning difficulties, and ensuring appropriate treatment for each child. The importance of a detailed clinical examination in identifying learning difficulties is stressed. Emphasis is placed on the doctor's work as a member of an assessment and treatment team and his role as coordinator of medical, educational, and psychosocial resources to aid the learning disabled child.

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833 **NORMAN, HENRY ARTHUR.** An analysis of attitudes of ward attendants toward mental retardation in four state residential institutions for the mentally retarded. *Dissertation Abstracts International*, 36(3):1438A-1439A, 1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-19,478.

The attitudes and work performance of 100 ward attendants in 4 state institutions of MRs were assessed by means of the Attitude Behavior Scale-MR and the Ohio State Personnel-Employee Performance Evaluation. The ward attendants sampled showed an above average attitude towards MRs. Knowledge or information about MR *per se* was not found to be a precursor of favorable attitudes towards the MR. Inexperienced attendants held more favorable attitudes towards MRs and had a greater feeling of control over their own environment than did experienced attendants, ward attendants with 1 year or less experience scoring the highest degree of favorabile attitudes towards the MR. Length of employment and the quality and quantity of work performance by ward attendants were directly related.

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834 **BAKER, AMANDA SIRMON.** Attitudes of nursing students toward mental retardation before and after curricular experience with mentally retarded children. *Dissertation Abstracts International*, 36(3):1428A,

1975. Available from Xerox University Microfilms, Ann Arbor, Michigan 48106. Order No. 75-19,312.

Seventy-two nursing students in the University of Florida College of Nursing, 46 of them without planned experience with MR children and 26 of them with this experience, were compared on attitudes towards MR. The study design was the Static-Group Comparison; the Attitude Behavior Scale Toward MR was used to measure attitudes and information about MR. There was a difference in the mean scores for hypotheses formulated for 8 of the 10 subscales on the Attitude Behavior Scale, but only 2 were statistically significant: one concerned Ss' perceptions of what other people generally believe about interacting with MRs, and the other dealt with Ss' perceptions of aspects of life or life situations. All differences were in a negative direction, except for the difference on the subscale concerned with knowledge about MR, which was in a positive direction. The findings indicated a difference in attitudes after the planned curricular experience with MR children, with attitudes tending to become more negative.

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